

PATENT ABSTRACTS OF JAPAN

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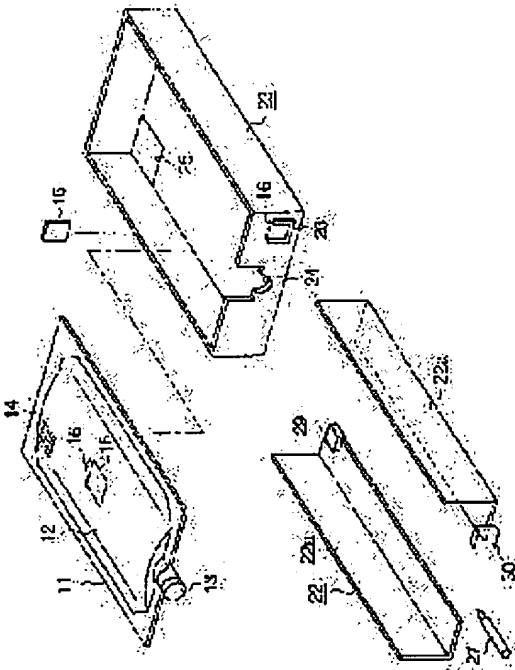
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**(54) INK BAG SET, PRINTER AND PRINTER SYSTEM HAVING THE SAME
LOADED THEREIN, AND CONTROL METHOD THEREFOR USING THE SAME**

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an ink bag set wherein a use quantity or a residual quantity of ink can be managed at each ink bag, and a printer and a printer system having the ink bag loaded therein.

SOLUTION: The ink bag set comprises an ink bag 11 containing the ink for printing and a memory chip 16 which has data relating to the ink bag 11 written therein and is separated from the ink bag 11. The memory chip 16 is housed in a housing section 15 provided on the ink bag 11, attached to the ink bag 11 with a connection string or housed in an identical bag housing case for the ink bag 11. The printer comprises a bag holding section 22 for setting the ink bag 11 and a data communication section 30 for communicating the data between the printer and the memory chip 16.



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CLAIMS

[Claim(s)]

[Claim 1] The ink bag set characterized by consisting the ink bag with which the ink for printing was held, its ink bag, and another object of a memory chip in which the data about nothing and an ink bag are written.

[Claim 2] Said ink bag is an ink bag set according to claim 1 characterized by consisting of a software case.

[Claim 3] Said ink bag is an ink bag set according to claim 1 or 2 characterized by having a stowage for containing a memory chip.

[Claim 4] The ink bag set according to claim 1 or 2 characterized by attaching said memory chip through a connection funiculus to an ink bag.

[Claim 5] The ink bag set according to claim 1 or 2 characterized by holding said ink bag and memory chip in one bag maintenance case.

[Claim 6] The ink bag set characterized by consisting the ink bag to which identification marking was given while the ink for printing was held, its ink bag, and another object of a memory chip in which the data corresponding to nothing and said identification marking are written.

[Claim 7] The ink bag set according to claim 6 characterized by writing the data corresponding to the identification marking of two or more ink bags in said memory chip.

[Claim 8] The printer characterized by having the bag set section for setting the ink bag with which the ink for printing was held, and the data delivery section which delivers data between said ink bags and memory chips of another object.

[Claim 9] Said bag set section is a printer according to claim 8 characterized by constituting so that the ink bag which consists of a software case may be set.

[Claim 10] The bag set section for setting the ink bag with which the ink for printing was held, The data delivery section which delivers data between said ink bags and memory chips of another object, The mark reading section which reads the identification marking attached on said ink bag, The printer characterized by having compared the data read in the memory chip by said data delivery section with the data read in identification marking by the mark reading section, and having a distinction means to distinguish the compatibility of a memory chip and an ink bag.

[Claim 11] The bag set section for setting the ink bag with which the ink for printing was held, The data delivery section which delivers data between said ink bags and memory chips of another object, When it is supervised that desorption exchange of an ink bag and a memory chip is not mostly performed at the same stage by monitor means to supervise desorption exchange of said ink bag and a memory chip, and its monitor means, The printer characterized by having the control means to which the control action for warning is made to carry out.

[Claim 12] Said monitor means is a printer according to claim 11 characterized by consisting of

the data delivery section which delivers data between memory chips, and the mark reading section which reads the identification marking attached on the ink bag.

[Claim 13] The bag set section for setting the ink bag with which the ink for printing was held, The printer equipped with the data delivery section which delivers data between said ink bags and memory chips of another object, The data which received the signal from this printer and were read in the memory chip by said data delivery section, The printer system which consists of computers which were made to perform distinction actuation which compares the data read in identification marking by the mark reading section, and distinguishes the compatibility of a memory chip and an ink bag.

[Claim 14] The bag set section for setting the ink bag with which the ink for printing was held, The printer equipped with the data delivery section which delivers data between said ink bags and memory chips of another object, When the signal from this printer is received, desorption exchange of said ink bag and a memory chip is supervised and it is supervised that desorption exchange of an ink bag and a memory chip is not performed mostly at the same stage, The printer system which consists of computers which were made to perform control action for warning.

[Claim 15] The control approach characterized by equipping a printer with an ink backset, comparing the data obtained from the ink back with the data obtained from the memory chip in which the data about this ink bag are written, and distinguishing the compatibility of a memory chip and the ink back.

[Claim 16] The control approach characterized by to perform warning actuation when said ink back and desorption exchange of said memory chip are supervised and it is supervised from the data which equipped the printer with the ink backset and were obtained from the ink back, and the data obtained from the memory chip in which the data about this ink bag are written that these ink back and desorption exchange of a memory chip are not performed mostly at the same stage.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention breathes out an ink droplet from a nozzle, and relates to the printer equipped with the ink bag set used for the ink jet-type printer which prints in a record form, and its ink bag set.

[0002]

[Description of the Prior Art] As an ink bag used for this kind of printer, while holding the ink for printing in a software case, what gave identification marking to the outside surface of that software case is known. The data about the attribute of ink, such as an ink color, are memorized by said identification marking, and where a printer is equipped with an ink bag, the attribute data of ink is read from identification marking by the reading section prepared in the printer. And an alarm display etc. is performed, when management of the amount of the ink used of an ink bag or a residue is performed by the control section of a printer and the amount of the ink used or residue of one ink bag reaches a predetermined value.

[0003]

[Problem(s) to be Solved by the Invention] However, in this conventional ink bag, identification

marking is prepared in the outside surface of an ink bag fixed as mentioned above, and residue management of ink is performed by the control section of a printer. For this reason, when using it again, having equipped the printer with that ink bag or another ink bag after being in the middle of use of ink and removing an ink bag from a printer, the amount (residue) of the data used memorized by the control section of the actual amount used (residue) and a printer was different, and there was a problem that management of the amount of the ink used (residue) could not be performed continuously.

[0004] Moreover, since, as for identification marking, one-dimensional [1] or a two-dimensional bar code is used in many cases, however such a bar code has little storage capacity and rewriting cannot do it, either, sufficient management cannot be performed.

[0005] This invention is made paying attention to the trouble which exists in such a Prior art. The purpose is to offer the ink bag set which can deal with a lot of data about the ink bag, the printer equipped with it, and a printer system while being able to perform management of the amount of the ink used, or a residue for every ink bag.

[0006]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, in invention according to claim 1 concerning an ink bag set, it is characterized by consisting of the ink bag with which the ink for printing was held, its ink bag, and a memory chip in which the data about nothing and an ink bag are written in another object.

[0007] Therefore, according to this invention according to claim 1, management of the amount of the ink used or a residue can be performed for every ink bag by writing the amount used or the residue of ink in a memory chip. Therefore, when using it again, equipping a printer with the ink bag after being in the middle of use of ink and removing an ink bag from a printer, management of the amount of the ink used or a residue can be performed continuously. Moreover, since a lot of data can be written in, ink bag management can fully be performed to a memory chip based on a lot of data.

[0008] In invention according to claim 2, said ink bag is characterized by consisting of a software case in invention according to claim 1. Therefore, according to this invention according to claim 2, since the memory chip is an ink bag and another object, even if the ink bag consists of a software case, a memory chip can be prepared corresponding to an ink bag.

[0009] In invention according to claim 3, said ink bag is characterized by having a stowage for containing a memory chip in invention according to claim 1 or 2. Therefore, while according to this invention according to claim 3 being able to deal with them in one and being able to equip a printer by containing a memory chip to the stowage of an ink bag, fear of loss of a memory chip can be lessened.

[0010] In invention according to claim 4, it is characterized by attaching said memory chip through a connection funiculus to an ink bag in invention according to claim 1 or 2. Therefore, while according to this invention according to claim 4 being able to deal with an ink bag and a memory chip in one and being able to equip a printer with them in the condition of having been connected through the connection funiculus, fear of loss of a memory chip can be lessened.

[0011] In invention according to claim 5, it is characterized by holding said ink bag and memory chip in one bag maintenance case in invention according to claim 1 or 2. Therefore, according to this invention according to claim 5, in the condition of having held in one bag maintenance case, an ink bag and a memory chip can be dealt with in one, and a printer can be equipped with them.

[0012] Moreover, in invention according to claim 6 concerning an ink bag set, it is characterized by consisting of the ink bag to which identification marking was given while the ink for printing

was held, its ink bag, and a memory chip in which the data corresponding to nothing and said identification marking are written in another object. Therefore, when a printer is equipped with an ink bag and a memory chip by writing the data of the identification marking on an ink bag in a memory chip according to this invention according to claim 6, it can be used for decision of those compatibility etc.

[0013] In invention according to claim 7, it is characterized by writing in the data corresponding to the identification marking of two or more ink bags in invention according to claim 6 at said memory chip. Therefore, according to this invention according to claim 7, the attribute data read in the identification marking of two or more ink bags by one memory chip can be written in, and data processing of those ink bags can be performed easily.

[0014] Furthermore, in invention according to claim 8 concerning a printer, it is characterized by having the bag set section for setting the ink bag with which the ink for printing was held, and the data delivery section which delivers data between said ink bags and memory chips of another object. Therefore, according to this invention according to claim 8, while setting an ink bag to the bag set section, where the data delivery section and a corresponding location are equipped with a memory chip, management of the amount of the ink used or a residue etc. can be performed easily.

[0015] In invention according to claim 9, said bag set section is characterized by constituting so that the ink bag which consists of a software case may be set in invention according to claim 8. Therefore, according to this invention according to claim 9, the ink bag which consists of a software case can be set to the bag set section easily and certainly.

[0016] moreover, in invention according to claim 10 concerning a printer The bag set section for setting the ink bag with which the ink for printing was held, The data delivery section which delivers data between said ink bags and memory chips of another object, The mark reading section which reads the identification marking attached on said ink bag, It is characterized by having compared the data read in the memory chip by said data delivery section with the data read in identification marking by the mark reading section, and having a distinction means to distinguish the compatibility of a memory chip and an ink bag.

[0017] Therefore, according to this invention according to claim 10, when a printer is equipped with an ink bag and a memory chip, compatibility of that memory chip and ink bag can be judged correctly. Therefore, the inequality of a memory chip and an ink bag can be controlled.

[0018] furthermore, in invention according to claim 11 concerning a printer The bag set section for setting the ink bag with which the ink for printing was held, The data delivery section which delivers data between said ink bags and memory chips of another object, When it is supervised that desorption exchange of an ink bag and a memory chip is not mostly performed at the same stage by monitor means to supervise desorption exchange of said ink bag and a memory chip, and its monitor means, It is characterized by having the control means to which the control action for warning is made to carry out.

[0019] Therefore, according to this invention according to claim 11, in case desorption exchange of an ink bag and the memory chip is carried out to a printer, it can supervise proper whether those desorption exchange was performed mostly at the same stage. Therefore, it can control that desorption exchange only of either of an ink bag and a memory chip is carried out, and can prevent that exchange of another side is forgotten [most].

[0020] In invention according to claim 12, said monitor means is characterized by consisting of the data delivery section which delivers data between memory chips, and the mark reading section which reads the identification marking attached on the ink bag in invention according to

claim 11. Therefore, it is not necessary to prepare a pilot switch etc. independently as a monitor means, and, according to this invention according to claim 12, a configuration can be simplified. [0021] The bag set section for setting the ink bag with which the ink for printing was held in invention according to claim 13, The printer equipped with the data delivery section which delivers data between said ink bags and memory chips of another object, The data which received the signal from this printer and were read in the memory chip by said data delivery section, The data read in identification marking by the mark reading section are compared, and it consists of computers which were made to perform distinction actuation which distinguishes the compatibility of a memory chip and an ink bag.

[0022] Therefore, according to this invention according to claim 13, when a printer is equipped with an ink bag and a memory chip, compatibility of that memory chip and ink bag can be judged correctly. Therefore, the inequality of a memory chip and an ink bag can be controlled. Moreover, by not preparing the device in which distinction actuation which distinguishes the compatibility of a memory chip and an ink bag by the comparison of data is performed in the interior of a printer, in order to perform this, since ** is also good, the configuration of a printer can be simplified.

[0023] The bag set section for setting the ink bag with which the ink for printing was held in invention according to claim 14, The printer equipped with the data delivery section which delivers data between said ink bags and memory chips of another object, When the signal from this printer is received, desorption exchange of said ink bag and a memory chip is supervised and it is supervised that desorption exchange of an ink bag and a memory chip is not performed mostly at the same stage, It is made to consist of computers which were made to perform control action for warning.

[0024] Therefore, according to this invention according to claim 14, in case desorption exchange of an ink bag and the memory chip is carried out to a printer, it can supervise proper whether those desorption exchange was performed mostly at the same stage. Therefore, it can control that desorption exchange only of either of an ink bag and a memory chip is carried out, and can prevent that exchange of another side is forgotten [most]. Moreover, by not preparing the structure which supervises proper whether desorption exchange of an ink bag and a memory chip was performed mostly at the same stage in the interior of a printer, in order to perform this, since ** is also good, the configuration of a printer can be simplified.

[0025] In invention according to claim 15, a printer is equipped with an ink backset, the data obtained from the ink back are compared with the data obtained from the memory chip in which the data about this ink bag are written, and the compatibility of a memory chip and the ink back is distinguished. Therefore, according to this invention according to claim 15, the same operation effectiveness as said claim 10 can be acquired.

[0026] In invention according to claim 16, a printer is equipped with an ink backset, and when it is supervised from the data obtained from the ink back, and the data obtained from the memory chip in which the data about this ink bag are written that supervise said ink back and desorption exchange of said memory chip, and these ink back and desorption exchange of a memory chip are not performed mostly at the same stage, it is made to perform warning actuation. Therefore, according to this invention according to claim 16, the same operation effectiveness as said claim 11 can be acquired.

[0027]

[Embodiment of the Invention] (The 1st operation gestalt) Below, the 1st operation gestalt of this invention is explained based on drawing 1 - drawing 5 .

[0028] First, the ink bag set of this operation gestalt is explained. As shown in drawing 1 and drawing 2, the body 12 of an ink bag of the ink bag 11 is formed in the shape of a software case with the laminate film which vapor-deposited aluminum to the polyethylene film which has for example, gas barrier property, and the ink for printing is held in the interior. The ink feed hopper 13 protrudes on the edge of the body 12 of an ink bag, and the ink within the body 12 of an ink bag is taken out from this ink feed hopper 13.

[0029] The identification marking 14 which consists of a bar code etc. is given to the edge section of the rear face of said body 12 of an ink bag. Data, such as a class of the attribute data about the ink in the ink bag 11, for example, ink, a color, the date of manufacture, and a plant, are recorded on this identification marking 14.

[0030] The stowage 15 of the shape of a transparent pocket is formed in the center section of the top face of said body 12 of an ink bag. The memory chip 16 which makes the ink bag 11 and another object in a stowage 15 is contained possible [ejection], and this memory chip 16 consists of contact mold memory IC etc. The storage region for writing in data, such as the attribute data of the ink in the ink bag 11 corresponding to said identification marking 14, for example, the class of ink, a color, the date of manufacture, and a plant, is established in this memory chip 16. Furthermore, the storage region for writing in the amount of existing [used] and residue of ink in the ink bag 11 is established in the memory chip 16.

[0031] Next, the printer which equips with and uses the ink bag set which consists of said ink bag 11 and memory chip 16 is explained. As shown in drawing 1 and drawing 2, along with the platen which a print head 21 does not illustrate, it is arranged movable by the body 20 of a printer. In the front face of 1 side of the body 20 of a printer, partition formation of two or more bag attaching parts 22 is carried out, and a pair each guide plate 22a is prepared in those bag attaching parts 22. And the ink bag 11 of the shape of said software case is set to each bag attaching part 22 in the condition of having held in the cartridge case 23.

[0032] Said cartridge case 23 is formed in the shape of a hard case by plastics etc. Output port 24 is formed in the end side of a cartridge case 23, and the ink feed hopper 13 of the ink bag 11 held in the cartridge case 23 is projected outside from this output port 24.

[0033] A window part 25 is formed in the 1 side base of said cartridge case 23, and the identification marking 14 on the ink bag 11 held in the cartridge case 23 is exposed to a lower part from this window part 25. In case the chip applied part 26 is formed in the external surface of a cartridge case 23, the ink bag 11 is held in a cartridge case 23 and it sets to the bag attaching part 22 so that output port 24 may be adjoined, a memory chip 16 is taken out from the stowage 15 on the ink bag 11, and this chip applied part 26 is equipped.

[0034] As shown in drawing 1 and drawing 2, opposite arrangement of the supply needle 27 is carried out at each bag attaching part 22 of said body 20 of a printer, and it connects with the print head 21 through the supply tube 28. And where the ink bag 11 is held in a cartridge case 23, when it is set to the bag attaching part 22, the supply needle 27 penetrates the ink feed hopper 13 of the ink bag 11, and is inserted into the body 12 of an ink bag. In this condition, with printing actuation of a print head 21, the ink in the ink bag 11 is supplied to a print head 21 through the supply needle 27 and the supply tube 28, and printing is performed on the record form P.

[0035] The mark reading section 29 is arranged in the edge of one guide plate 22a of each of said bag attaching part 22, and the attribute data of ink is read in the identification marking 14 on the ink bag 11 by this mark reading section 29. The data delivery section 30 is arranged in the edge of guide plate 22a of another side of each bag attaching part 22, and reading is performed in the write-in list about the attribute data of ink, and the data of the amount of existing [used], or a

residue by this data delivery section 30 in the state of contact to the memory chip 16 on a cartridge case 23.

[0036] Next, the circuitry of the printer which consists of the above structures is explained. As shown in drawing 3, the central processing unit (CPU) 33 which controls actuation of the whole printer is formed in the body 20 of a printer, and the random access memory (RAM) 35 which stores temporarily the read-only memory (ROM) 34 which stored the program of operation, and working data is connected to the CPU33. The printing mechanism 36 containing said print head 21 is connected to CPU33, and an active signal is outputted to this printing mechanism 36. Moreover, the mark reading section 29 and the data delivery section 30 are connected to CPU33, and delivery of the attribute data of ink etc. is performed between this mark reading section 29 and the data delivery section 30.

[0037] Furthermore, the external personal computer (it is hereafter indicated as PC) 38 is connected to CPU33 within said body 20 of a printer through an interface 37, and delivery of print data or an alarm display signal is performed to it between this PC38. When the displays 39, such as a display unit, are connected to PC38 and an alarm display signal is outputted to PC38 from CPU33, a warning message is displayed on this display 39. A keyboard 40 is connected to PC38 and various data are inputted from this keyboard 40.

[0038] Moreover, in this operation gestalt, while the monitor means for supervising desorption exchange of the ink bag 11 and a memory chip 16 by said CPU33, the mark reading section 29, and the data delivery section 30 is made to serve a double purpose, the distinction means is constituted by CPU33. And when it is checked by the mark reading section 29 and the data delivery section 30 that desorption exchange of the ink bag 11 and a memory chip 16 is not performed mostly at the same stage, That is, when it is detected that desorption exchange of another side is not carried out even if it goes through predetermined time after desorption exchange of either of the ink bag 11 and a memory chip 16 was carried out, the alarm display signal to which desorption exchange of another side is urged from CPU33 is outputted.

[0039] Furthermore, the distinction means is constituted by said CPU33 in this operation gestalt. And the attribute data of the ink read in the identification marking 14 on the ink bag 11 in the mark reading section 29 when the body 20 of a printer was equipped with the ink bag 11 and a memory chip 16, The attribute data of the ink read in the memory chip 16 in the data delivery section 30 is compared by CPU33, the compatibility of the ink bag 11 and a memory chip 16 is distinguished, and when it is nonconformance, an alarm display signal to that effect is outputted. [0040] And in case the ink in the ink bag 11 with which said bag attaching part 22 was equipped is used and printing is performed by the print head 21 on the record form P, based on control of CPU33, the data of the amount of existing [used] of ink or a residue are written in a memory chip 16 by the data delivery section 30. And when the amount of the addition used or addition residue of ink written in the memory chip 16 reaches a predetermined value, the alarm display signal to which exchange of the ink bag 11 is urged from CPU33 is outputted.

[0041] Next, actuation of the printer equipped with the ink bag set and it which were constituted as mentioned above is explained. First, the monitor actuation at the time of desorption exchange of the ink bag 11 and a memory chip 16 is explained according to the flow chart of drawing 4. If desorption exchange of either of the ink bag 11 and a memory chip 16 is carried out, the exchange actuation will be detected in the mark reading section 29 or the data delivery section 30 (step S1). Then, to carry out desorption exchange of another side of the ink bag 11 and a memory chip 16, and to detect the exchange actuation in the data delivery section 30 or the mark reading section 29 is waited (step S2).

[0042] And when desorption exchange of another side is not performed even if it carries out fixed time amount progress after desorption exchange of one side of the ink bag 11 and a memory chip 16 is carried out, an alarm display signal is outputted to a display 39 through PC38 from (step S3) and CPU33. Thereby, a warning message, such as "please exchange for an ink bag [finishing / exchange] at a corresponding memory chip" or "please exchange for a memory chip [finishing / exchange] and a corresponding ink bag", is displayed on a display 39 (step S4).

[0043] Subsequently, reading and processing actuation of data at the time of wearing of the ink bag 11 and a memory chip 16 are explained according to the flow chart of drawing 5 . If a cartridge case 23 is set to the bag attaching part 22 of the body 20 of a printer where the chip applied part 26 of a cartridge case 23 is equipped with a memory chip 16 while the ink bag 11 is held in a cartridge case 23, the data of the identification marking 14 on the ink bag 11 will be read by the mark reading section 29 (step S5). It is distinguished whether with it, the data of a memory chip 16 are read by the data delivery section 30 (step S6), and the reading data from the memory chip 16 exist (step S7).

[0044] In distinction of said step S7, when the reading data from a memory chip 16 exist, it is distinguished whether the reading data from identification marking 14 and the reading data from a memory chip 16 are in agreement (step S8). And when the ink bag 11 and a memory chip 16 do not correspond when both data are not in agreement namely, an alarm display signal is outputted to a display 39 through PC38 from CPU33. Thereby, for example, "ink bag and a memory chip are not in agreement. A warning message, such as please reequip a match", is displayed on a display 39 (step S9).

[0045] On the other hand, when the reading data from a memory chip 16 do not exist in distinction of said step S7, the attribute data of the ink read in identification marking 14 is written in a memory chip 16 by the data delivery section 30 (step S10). Then, if printing actuation is started based on the attribute data of a memory chip 16, use of the ink in the ink bag 11 will be detected (step S11), and the data or the residue of the amount of existing [used] of the ink will be written in a memory chip 16 by the data delivery section 30 (step S12). Moreover, in distinction of said step S8, when the reading data from identification marking 14 and the reading data from a memory chip 16 are in agreement, it goes on to steps S11 and S12, and the aforementioned actuation is performed.

[0046] Then, actuation of said steps S11-S13 is repeatedly performed until it is distinguished whether the amount of the addition used or addition residue of ink written in said memory chip 16 reached the predetermined value (step S13) and the amount of the addition used or addition residue of ink reaches a predetermined value. And if the amount of the addition used or addition residue of ink reaches a predetermined value, an alarm display signal will be outputted to a display 39 through PC38 from CPU33. Thereby, the ink of for example, "ink bag was lost. A warning message, such as please exchange for a new thing", is displayed on a display 39 (step S14).

[0047] Therefore, according to this operation gestalt, the following effectiveness can be acquired.

(1) It consists of the ink bag 11 with which the ink for printing was held, its ink bag 11, and a memory chip 16 in which the data about nothing and the ink bag 11 are written in another object in this ink bag set. For this reason, management of the amount of the ink used or a residue can be performed every ink bag 11 by writing the amount used or the residue of ink in a memory chip 16. Therefore, by detaching and attaching a memory chip 16 to coincidence, when using it again, equipping a printer with the ink bag 11 after being in the middle of use of ink and removing the

ink bag 11 from a printer, management of the amount of the ink used or a residue can be performed continuously. And since writing and elimination are also free while a lot of data can be memorized by the memory chip unlike the identification marking which consists of a bar code, management of the ink bag 11 can be ensured finely. Moreover, even if all the ink of the ink bag 11 is used, since the data of other ink bags 11 can also be written in, unlike the ink bag 11, a memory chip 16 can also be used for a memory chip 16 as it is.

[0048] (2) In this ink bag set, even if the ink bag 11 consists of software cases, a memory chip 16 can be formed corresponding to the ink bag 11, because the memory chip 16 is the ink bag 11 and another object.

[0049] (3) In this ink bag set, it has the stowage 15 for said ink bag 11 to contain a memory chip 16. For this reason, while being able to deal with them in one by containing a memory chip 16 to the stowage 15 of the ink bag 11, even if a memory chip 16 is another object, there is little fear of loss of a memory chip 16.

[0050] (4) In this ink bag set, identification marking 14 is given to said ink bag 11. For this reason, when a printer is equipped with the ink bag 11 and a memory chip 16 by writing the data of the identification marking 14 on the ink bag 11 in a memory chip 16, it can be used for decision of those compatibility etc.

[0051] (5) In the printer equipped with this ink bag set, the bag attaching part 22 for setting the ink bag 11 with which the ink for printing was held, and the data delivery section 30 which delivers data between the ink bag 11 and the memory chip 16 of another object are formed. For this reason, while setting the ink bag 11 to the bag attaching part 22, where the data delivery section 30 and a corresponding location are equipped with a memory chip 16, management of the amount of the ink used or a residue etc. can be performed easily.

[0052] (6) In this printer, it is in the condition which held the ink bag 11 which consists of a software case in the cartridge case 23, and it is constituted so that it may set to the bag attaching part 22. For this reason, even if the ink bag 11 is a software case, it can set to the body 20 of a printer easily and certainly.

[0053] (7) In this printer, said memory chip 16 memorizes the attribute data of ink, and reads attribute data from a memory chip 16 for printing actuation of said data delivery section 30. For this reason, the attribute data of ink can be read from a memory chip 16, and printing actuation can be controlled exactly.

[0054] (8) In this printer, when said data delivery section 30 writes in the data of the amount of existing [used] of ink, or a residue to a memory chip 16 and the amount of the addition used or an addition residue reaches a predetermined value, control action for warning is performed. For this reason, the residue or the amount of ink of the ink bag 11 used can be managed proper, it can warn of ink having been lost exactly, and the ink bag 11 can be exchanged to suitable timing. Therefore, the inconvenient situations, such as an ink piece, can be prevented beforehand.

[0055] (9) In this printer, the data read in the memory chip 16 by the data delivery section 30 are compared with the data read in identification marking 14 by the mark reading section 29, and the compatibility of a memory chip 16 and the ink bag 11 is distinguished. For this reason, when a printer is equipped with the ink bag 11 and a memory chip 16, compatibility of that memory chip 16 and ink bag 11 can be judged correctly. Therefore, the inequality of a memory chip 16 and the ink bag 11 can be controlled.

[0056] (10) In this printer, when desorption exchange of the ink bag 11 and a memory chip 16 is supervised and it is supervised that desorption exchange of that ink bag 11 and a memory chip 16 is not performed mostly at the same stage, control action for warning is performed. For this

reason, in case desorption exchange of the ink bag 11 and the memory chip 16 is carried out to a printer, it can supervise proper whether those desorption exchange was performed mostly at the same stage. Therefore, it can control that desorption exchange only of either of the ink bag 11 and a memory chip 16 is carried out, and can prevent that exchange of another side is forgotten [most].

[0057] (11) In this printer, a means to supervise desorption exchange of said ink bag 11 and a memory chip 16 is constituted between memory chips 16 by the data delivery section 30 which delivers data, and the mark reading section 29 which reads the identification marking 14 attached on the ink bag 11. For this reason, it is not necessary to prepare a pilot switch etc. independently as a monitor means, and a configuration can be simplified.

[0058] (The 2nd operation gestalt) Next, the 2nd operation gestalt of this invention is explained focusing on a different part from said 1st operation gestalt. In addition, in each operation gestalt after the 2nd operation gestalt, it explains focusing on a different part as mentioned above from the 1st operation gestalt.

[0059] Now, in this 2nd operation gestalt, as shown in drawing 6, each bag attaching part 22 and two or more corresponding chip insertion sections 43 are formed in the front face of 1 side of the body 20 of a printer. And where the ink bag 11 is held in a cartridge case 23, in case it sets to the bag attaching part 22 of a printer, a memory chip 16 is taken out from the stowage 15 on the ink bag 11, and it inserts in the bag attaching part 22 and the corresponding chip insertion section 43.

[0060] In the body 20 of a printer, two or more data delivery sections 30 are arranged so that it may correspond with said each chip insertion section 43. And delivery of the attribute data of the ink in the ink bag 11 and the data of the amount of existing [used] of ink and a residue is performed between the memory chips 16 and the data delivery sections 30 which were inserted into the chip insertion section 43.

[0061] Therefore, according to this 2nd operation gestalt, the effectiveness of a publication and the same effectiveness can be acquired to (1) - (11) in said 1st operation gestalt.

[0062] (The 3rd operation gestalt) Next, the 3rd operation gestalt of this invention is explained.

[0063] Now, in this 3rd operation gestalt, as shown in drawing 7, the memory chip 16 is attached to the edge of the ink bag 11 through the connection funiculus 44. And where the ink bag 11 is held in a cartridge case 23, in case it sets to the bag attaching part 22 of a printer, the chip applied part 26 of the external surface of a cartridge case 23 is equipped with the memory chip 16 attached to the ink bag 11.

[0064] Therefore, according to this 3rd operation gestalt, in addition to the effectiveness of a publication, the following effectiveness can be acquired to (1) in said each operation gestalt, (2), and (4) - (11).

[0065] (12) In this ink bag set, the memory chip 16 is attached through the connection funiculus 44 to the ink bag 11. For this reason, where the ink bag 11 and a memory chip 16 are connected by the connection funiculus 44, while being able to deal with it in one and being able to equip easily to a printer, most loss of a memory chip 16 can be prevented.

[0066] (The 4th operation gestalt) Next, the 4th operation gestalt of this invention is explained. Now, in this 4th operation gestalt, as shown in drawing 8, it is sold in the condition of having held in the bag maintenance case 45 where the ink bag 11 which consists of a software case consists of a hard case, and breakage by the external force of the ink bag 11 is controlled by this. Moreover, the memory chip 16 is also held in the same bag maintenance case 45 as the ink bag 11.

[0067] And in case the ink bag 11 is picked out from the bag maintenance case 45 and it sets to

the bag attaching part 22 of a printer through a cartridge case 23, a memory chip 16 is taken out from the bag maintenance case 45, and the chip applied part 26 on a cartridge case 23 is equipped, or it inserts in the chip insertion section 43 of the body 20 of a printer.

[0068] Therefore, according to this 4th operation gestalt, the same effectiveness as (1) in said each operation gestalt, (2), and (4) - (11) can be acquired.

[0069] (The 5th operation gestalt) Next, the 5th operation gestalt of this invention is explained.

[0070] Now, in this 5th operation gestalt, as shown in drawing 9, packing maintenance of the ink bag 11 which consists of two or more software cases is carried out as 1 set into the bag maintenance case 45 which consists of a hard case. In this case, two or more ink bags 11 which held unique ink were packed up as 1 set, or held the ink of the same color are packed up as 1 set. And breakage by the external force of each ink bag 11 is controlled with this packing.

[0071] Moreover, in said bag maintenance case 45, one memory chip 16 is held corresponding to 1 set of ink bags 11. The storage region which can write in the attribute data of the ink corresponding to the identification marking 14 of two or more ink bags 11, and the storage region which can write in the data of the amount of existing [used] of ink and the data of a residue about two or more ink bags 11 are established in this memory chip 16.

[0072] And every one ink bag 11 which made 1 set two or more ink bags 11 which held unique ink, and took out from the bag maintenance case 45, or held the ink of the same color is picked out from the bag maintenance case 45, and it sets to the bag attaching part 22 of a printer through a cartridge case 23. In this case, a memory chip 16 is taken out from the bag maintenance case 45, and the chip applied part 26 on a cartridge case 23 is equipped, or it inserts in the chip insertion section 43 of the body 20 of a printer. In this case, data processing of the ink about two or more ink bags 11 is performed by one memory chip 16.

[0073] Therefore, according to this 5th operation gestalt, in addition to the effectiveness of a publication, the following effectiveness can be acquired to (1) in said each operation gestalt, (2), and (4) - (11).

[0074] (13) In this ink bag set, two or more ink bags 11 are held as 1 set at the bag maintenance case 45. For this reason, it is convenient, when using two or more ink bags 11 which held unique ink to coincidence for a printer, equipping with them, when using for a printer two or more ink bags 11 which held the ink of the same color, equipping it with them in order, or when selling.

[0075] (14) In this ink bag set, the memory chip 16 is formed corresponding to 1 set of ink bags 11. For this reason, the attribute data of two or more ink bags 11 by one memory chip 16 etc. can be processed easily.

[0076] (15) In this ink bag set, the data corresponding to the identification marking 14 of two or more ink bags 11 are written in said memory chip 16. For this reason, the attribute data read in the identification marking 14 of two or more ink bags 11 by one memory chip 16 can be written in every ink bag 11 certainly, and data processing of those ink bags 11 can be performed easily.

[0077] (16) In this ink bag set, the storage region which can write the data about two or more ink residues or amount of the ink bag 11 used in said memory chip 16 is prepared. For this reason, when using for a printer two or more ink bags 11 which held the ink of the same color, equipping it with them in order, the amount used or the residue of ink of each ink bag 11 can be managed continuously.

[0078] (17) In this ink backset, since the ink back's information can be written in a memory chip 16 when it is the same ink back altogether, a memory chip 16 can be used about.

[0079] (The 6th operation gestalt) Next, the 6th operation gestalt of this invention is explained.

Now, in this 6th operation gestalt, as shown in drawing 10 , packing maintenance of the ink bag 11 which consists of two or more software cases where unique ink was held is carried out as 1 set into the bag maintenance case 45 which consists of a hard case. Two or more bores 46 are formed in the side attachment wall of the bag maintenance case 45, and the ink feed hopper 13 of each ink bag 11 is exposed outside through these bores 46.

[0080] One memory chip 16 is attached in the side-attachment-wall external surface of said bag maintenance case 45 corresponding to 1 set of ink bags 11. The storage region which can write in the attribute data of the ink corresponding to the identification marking 14 of two or more ink bags 11, and the storage region which can write in the data of the amount of existing [used] of ink and the data of a residue about two or more ink bags 11 are established in this memory chip 16.

[0081] Moreover, the bag attaching part 22 in a printer is constituted so that two or more ink bags 11 can be set in the condition [having held in the bag maintenance case 45]. And while two or more supply needles 27 which can be penetrated to the ink feed hopper 13 of each ink bag 11 are arranged, the data delivery section 30 which can respond to the memory chip 16 on the bag maintenance case 45 is formed in this bag attaching part 22.

[0082] Therefore, according to this 6th operation gestalt, in addition to the effectiveness of a publication, the following effectiveness can be acquired to (1) in said each operation gestalt, (2), and (4) - (11) and (13) - (16).

[0083] (18) The memory chip 16 is attached in the bag maintenance case 45 in this ink bag set. For this reason, if the ink bag 11 is set to the bag attaching part 22 in the condition of having been held at the bag maintenance case 45, it can equip with the memory chip 16 attached in that bag maintenance case 45 easily to a printer.

[0084] (19) In the printer equipped with this ink bag, the bag attaching part 22 can set now in the condition [having held two or more ink bags 11 in the bag maintenance case 45]. For this reason, two or more ink bags 11 can be picked out from the bag maintenance case 45, it is not necessary to set to the bag attaching part 22, and that set actuation can be performed easily.

[0085] (Example of modification) In addition, it changes as follows and this operation gestalt can also take shape.

- In the aforementioned 1st and 3rd operation gestalt, without forming the ink bag 11 in a hard case, and holding the ink bag 11 in a cartridge case 23, you may constitute so that it may set to the bag attaching part 22 of a printer directly. In this case, the memory chip 16 which was contained by the stowage 15 on the ink bag 11, or was attached to the ink bag 11 through the connection funiculus 44 is constituted so that it may insert in the chip insertion section 43 of the body 20 of a printer like said 2nd operation gestalt.

[0086] - In the aforementioned 4th operation gestalt, without using a cartridge case 23, you may constitute from a condition [having held the ink bag 11 which consists of a software case in the bag maintenance case 45 which consists of a hard case] so that it may set to the bag attaching part 22 of a printer directly. In this case, like said 6th operation gestalt, a memory chip 16 is constituted so that it may attach in the side-attachment-wall external surface of the bag maintenance case 45.

[0087] - You may make it form a memory chip 16 so that it may correspond to each of 1 set of ink bags 11, and may make it form memory chips 16 fewer than the number of 1 set of ink bags 11 in the aforementioned 5th operation gestalt.

[0088] - In the aforementioned 6th operation gestalt, two or more ink bags 11 may be formed in a hard case, and you may constitute from a condition [having held those ink bags 11 in the bag

maintenance case 45] so that it may set to the bag attaching part 22 of a printer.

[0089] - In each aforementioned operation gestalt, it may constitute from non-contact mold memory, and a memory chip 16 may be constituted so that data may be transmitted through the data delivery section 30, light, etc. which were prepared in the printer side.

[0090] - In each aforementioned operation gestalt, the identification marking 14 on the ink bag 11 may be omitted, and the attribute data of the ink about the ink bag 11 etc. may be beforehand written in to a memory chip 16, and you may constitute so that printing actuation may be controlled.

[0091] - In each aforementioned operation gestalt, pilot switches, such as a proximity switch, may be prepared as the ink bag 11 and a monitor means of desorption exchange of a memory chip 16, and you may constitute so that a detecting signal may be outputted from these pilot switches at the time of desorption exchange of the ink bag 11 and memory chip 16 to a printer.

[0092] - In each aforementioned operation gestalt, PC38 of the exterior of the body 20 of a printer may be made to perform control action of warning when the monitor, the amount of the addition used, or addition residue of decision of the adaptability of the ink bag 11 and memory chip 16 by CPU33 stored in the body 20 of a printer or desorption exchange of the ink bag 11 and a memory chip 16 reaches a predetermined value etc. Moreover, it not only connects with PC, but the printer connected to fax or a copy may be made to perform. That is, all the computers [the computer of a publication] that can be carried out by not only PC generally called a computer but the processing operation shall be included in a claim.

[0093] Next, the technical thought except having indicated to the claim which can be grasped from the above-mentioned operation gestalt and example of another is indicated below with those effectiveness.

[0094] (1) An ink bag set given in any 1 term of claims 1 - claims 5 which are characterized by giving identification marking to said ink bag.

[0095] Therefore, when a printer is equipped with an ink bag and a memory chip by writing the data of the identification marking on an ink bag in a memory chip according to invention given in this (1), it can be used for decision of those compatibility etc.

[0096] (2) An ink bag set given in any 1 term of claim 1 characterized by holding in a bag maintenance case, having used as 1 set the ink bag which is plurality - claim 5, and the aforementioned (1) terms.

[0097] Therefore, according to invention given in this (2), two or more ink bags are held as 1 set at the bag maintenance case. For this reason, it is convenient when [which uses two or more ink bags which held the ink of the same color for a printer, equipping it with them in order] using two or more ink bags which held unique ink to coincidence for a printer, equipping with them, and case, or bundling up and selling.

[0098] (3) An ink bag set given in the above (2) characterized by attaching said memory chip in a bag maintenance case. Therefore, according to invention given in this (3), it can equip with the memory chip attached in the bag maintenance case easily to a printer with an ink bag.

[0099] (4) Said memory chip is an ink bag set given in the aforementioned (2) term or the aforementioned (3) term characterized by preparing corresponding to 1 set of ink bags.

Therefore, according to invention given in this (4), the attribute data of two or more ink bags by one memory chip etc. can be processed easily.

[0100] (5) The ink bag set according to claim 6 characterized by establishing the storage region which can write in the data about two or more amount used or residues of ink of an ink bag in said memory chip.

[0101] Therefore, when using two or more ink bags which held the ink of the same color for a printer according to invention given in this (5), equipping it with them in order, the amount used or the residue of ink of each ink bag can be managed continuously.

[0102] (6) Said bag set section is a printer according to claim 8 characterized by constituting so that the bag maintenance case where two or more ink bags are held may be set. Therefore, according to invention given in this (6), two or more ink bags can be easily set to the bag set section in the condition [having held in the bag maintenance case].

[0103] (7) It is a printer given in any of claim 8 characterized by said data delivery section reading attribute data from a memory chip for printing actuation, claim 10, claim 11, and the aforementioned (6) term said memory chip memorizes the attribute data which is ink, and they are.

[0104] Therefore, according to invention given in this (7), the attribute data of ink can be read from a memory chip, and printing actuation can be controlled exactly.

[0105] (8) said -- data -- delivery -- the section -- a memory chip -- receiving -- ink -- existing -- the amount used -- data -- or -- a residue -- data -- writing in -- addition -- the amount used -- or -- addition -- a residue -- predetermined -- a value -- having reached -- the time -- warning -- a sake -- control action -- carrying out -- things -- the description -- ** -- carrying out -- a claim -- eight -- a claim -- ten -- a claim -- 11 -- the above -- (-- six --) -- a term -- and -- the above -- (-- seven --) -- a term -- any -- or -- a publication -- a printer -- .

[0106] Therefore, according to invention given in this (8), the amount used or the residue of ink of an ink bag can be managed proper, it can warn of ink having been lost exactly, and an ink bag can be exchanged to suitable timing. Therefore, the inconvenient situations, such as an ink piece, can be prevented beforehand.

[0107] (9) The printer system which consists of a printer equipped with the bag set section for setting the ink bag with which the ink for printing was held, and the data delivery section which delivers data between said ink bags and memory chips of another object, and a computer which was made to perform control action of warning when the signal from this printer was received and the amount of the addition used or the addition residue of this ink reached a predetermined value.

[0108] Therefore, according to invention given in this (9), the amount used or the residue of ink of an ink bag can be managed proper, it can warn of ink having been lost exactly, and an ink bag can be exchanged to suitable timing. Therefore, the inconvenient situations, such as an ink piece, can be prevented beforehand. Moreover, by not preparing the device in which control action of warning is performed in the interior of a printer, in order to perform this, since ** is also good, the configuration of a printer can be simplified.

[0109]

[Effect of the Invention] As mentioned above, as explained in full detail, according to this invention, management of the amount of the ink used or a residue can be performed for every ink bag by writing an ink residue or the amount used in a memory chip. Therefore, when using it again, equipping a printer with the ink bag after being in the middle of use of ink and removing an ink bag from a printer, management of the amount of the ink used or a residue can be performed continuously. Moreover, since a lot of data can be written in, ink back management can fully be performed to a memory chip based on a lot of data.

TECHNICAL FIELD

[Field of the Invention] This invention breathes out an ink droplet from a nozzle, and relates to the printer equipped with the ink bag set used for the ink jet-type printer which prints in a record form, and its ink bag set.

PRIOR ART

[Description of the Prior Art] As an ink bag used for this kind of printer, while holding the ink for printing in a software case, what gave identification marking to the outside surface of that software case is known. The data about the attribute of ink, such as an ink color, are memorized by said identification marking, and where a printer is equipped with an ink bag, the attribute data of ink is read from identification marking by the reading section prepared in the printer. And an alarm display etc. is performed, when management of the amount of the ink used of an ink bag or a residue is performed by the control section of a printer and the amount of the ink used or residue of one ink bag reaches a predetermined value.

EFFECT OF THE INVENTION

[Effect of the Invention] As mentioned above, as explained in full detail, according to this invention, management of the amount of the ink used or a residue can be performed for every ink bag by writing an ink residue or the amount used in a memory chip. Therefore, when using it again, equipping a printer with the ink bag after being in the middle of use of ink and removing an ink bag from a printer, management of the amount of the ink used or a residue can be performed continuously. Moreover, since a lot of data can be written in, ink back management can fully be performed to a memory chip based on a lot of data.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, in this conventional ink bag, identification marking is prepared in the outside surface of an ink bag fixed as mentioned above, and residue management of ink is performed by the control section of a printer. For this reason, when using it again, having equipped the printer with that ink bag or another ink bag after being in the middle of use of ink and removing an ink bag from a printer, the amount (residue) of the data used memorized by the control section of the actual amount used (residue) and a printer was different, and there was a problem that management of the amount of the ink used (residue) could not be performed continuously.

[0004] Moreover, since, as for identification marking, one-dimensional [1] or a two-dimensional bar code is used in many cases, however such a bar code has little storage capacity and rewriting cannot do it, either, sufficient management cannot be performed.

[0005] This invention is made paying attention to the trouble which exists in such a Prior art. The purpose is to offer the ink bag set which can deal with a lot of data about the ink back, the printer equipped with it, and a printer system while being able to perform management of the amount of the ink used, or a residue for every ink bag.

MEANS

[Means for Solving the Problem] In order to attain the above-mentioned purpose, in invention according to claim 1 concerning an ink bag set, it is characterized by consisting of the ink bag with which the ink for printing was held, its ink bag, and a memory chip in which the data about nothing and an ink bag are written in another object.

[0007] Therefore, according to this invention according to claim 1, management of the amount of the ink used or a residue can be performed for every ink bag by writing the amount used or the residue of ink in a memory chip. Therefore, when using it again, equipping a printer with the ink bag after being in the middle of use of ink and removing an ink bag from a printer, management of the amount of the ink used or a residue can be performed continuously. Moreover, since a lot of data can be written in, ink back management can fully be performed to a memory chip based on a lot of data.

[0008] In invention according to claim 2, said ink bag is characterized by consisting of a software case in invention according to claim 1. Therefore, according to this invention according to claim 2, since the memory chip is an ink bag and another object, even if the ink bag consists of a software case, a memory chip can be prepared corresponding to an ink bag.

[0009] In invention according to claim 3, said ink bag is characterized by having a stowage for containing a memory chip in invention according to claim 1 or 2. Therefore, while according to this invention according to claim 3 being able to deal with them in one and being able to equip a printer by containing a memory chip to the stowage of an ink bag, fear of loss of a memory chip can be lessened.

[0010] In invention according to claim 4, it is characterized by attaching said memory chip through a connection funiculus to an ink bag in invention according to claim 1 or 2. Therefore, while according to this invention according to claim 4 being able to deal with an ink bag and a memory chip in one and being able to equip a printer with them in the condition of having been connected through the connection funiculus, fear of loss of a memory chip can be lessened.

[0011] In invention according to claim 5, it is characterized by holding said ink bag and memory chip in one bag maintenance case in invention according to claim 1 or 2. Therefore, according to this invention according to claim 5, in the condition of having held in one bag maintenance case, an ink bag and a memory chip can be dealt with in one, and a printer can be equipped with them.

[0012] Moreover, in invention according to claim 6 concerning an ink bag set, it is characterized by consisting of the ink bag to which identification marking was given while the ink for printing was held, its ink bag, and a memory chip in which the data corresponding to nothing and said identification marking are written in another object. Therefore, when a printer is equipped with an ink bag and a memory chip by writing the data of the identification marking on an ink bag in a memory chip according to this invention according to claim 6, it can be used for decision of those compatibility etc.

[0013] In invention according to claim 7, it is characterized by writing in the data corresponding to the identification marking of two or more ink bags in invention according to claim 6 at said

memory chip. Therefore, according to this invention according to claim 7, the attribute data read in the identification marking of two or more ink bags by one memory chip can be written in, and data processing of those ink bags can be performed easily.

[0014] Furthermore, in invention according to claim 8 concerning a printer, it is characterized by having the bag set section for setting the ink bag with which the ink for printing was held, and the data delivery section which delivers data between said ink bags and memory chips of another object. Therefore, according to this invention according to claim 8, while setting an ink bag to the bag set section, where the data delivery section and a corresponding location are equipped with a memory chip, management of the amount of the ink used or a residue etc. can be performed easily.

[0015] In invention according to claim 9, said bag set section is characterized by constituting so that the ink bag which consists of a software case may be set in invention according to claim 8. Therefore, according to this invention according to claim 9, the ink bag which consists of a software case can be set to the bag set section easily and certainly.

[0016] moreover, in invention according to claim 10 concerning a printer The bag set section for setting the ink bag with which the ink for printing was held, The data delivery section which delivers data between said ink bags and memory chips of another object, The mark reading section which reads the identification marking attached on said ink bag, It is characterized by having compared the data read in the memory chip by said data delivery section with the data read in identification marking by the mark reading section, and having a distinction means to distinguish the compatibility of a memory chip and an ink bag.

[0017] Therefore, according to this invention according to claim 10, when a printer is equipped with an ink bag and a memory chip, compatibility of that memory chip and ink bag can be judged correctly. Therefore, the inequality of a memory chip and an ink bag can be controlled.

[0018] furthermore, in invention according to claim 11 concerning a printer The bag set section for setting the ink bag with which the ink for printing was held, The data delivery section which delivers data between said ink bags and memory chips of another object, When it is supervised that desorption exchange of an ink bag and a memory chip is not mostly performed at the same stage by monitor means to supervise desorption exchange of said ink bag and a memory chip, and its monitor means, It is characterized by having the control means to which the control action for warning is made to carry out.

[0019] Therefore, according to this invention according to claim 11, in case desorption exchange of an ink bag and the memory chip is carried out to a printer, it can supervise proper whether those desorption exchange was performed mostly at the same stage. Therefore, it can control that desorption exchange only of either of an ink bag and a memory chip is carried out, and can prevent that exchange of another side is forgotten [most].

[0020] In invention according to claim 12, said monitor means is characterized by consisting of the data delivery section which delivers data between memory chips, and the mark reading section which reads the identification marking attached on the ink bag in invention according to claim 11. Therefore, it is not necessary to prepare a pilot switch etc. independently as a monitor means, and, according to this invention according to claim 12, a configuration can be simplified.

[0021] The bag set section for setting the ink bag with which the ink for printing was held in invention according to claim 13, The printer equipped with the data delivery section which delivers data between said ink bags and memory chips of another object, The data which received the signal from this printer and were read in the memory chip by said data delivery section, The data read in identification marking by the mark reading section are compared, and it

consists of computers which were made to perform distinction actuation which distinguishes the compatibility of a memory chip and an ink bag.

[0022] Therefore, according to this invention according to claim 13, when a printer is equipped with an ink bag and a memory chip, compatibility of that memory chip and ink bag can be judged correctly. Therefore, the inequality of a memory chip and an ink bag can be controlled. Moreover, by not preparing the device in which distinction actuation which distinguishes the compatibility of a memory chip and an ink bag by the comparison of data is performed in the interior of a printer, in order to perform this, since ** is also good, the configuration of a printer can be simplified.

[0023] The bag set section for setting the ink bag with which the ink for printing was held in invention according to claim 14, The printer equipped with the data delivery section which delivers data between said ink bags and memory chips of another object, When the signal from this printer is received, desorption exchange of said ink bag and a memory chip is supervised and it is supervised that desorption exchange of an ink bag and a memory chip is not performed mostly at the same stage, It is made to consist of computers which were made to perform control action for warning.

[0024] Therefore, according to this invention according to claim 14, in case desorption exchange of an ink bag and the memory chip is carried out to a printer, it can supervise proper whether those desorption exchange was performed mostly at the same stage. Therefore, it can control that desorption exchange only of either of an ink bag and a memory chip is carried out, and can prevent that exchange of another side is forgotten [most]. Moreover, by not preparing the structure which supervises proper whether desorption exchange of an ink bag and a memory chip was performed mostly at the same stage in the interior of a printer, in order to perform this, since ** is also good, the configuration of a printer can be simplified.

[0025] In invention according to claim 15, a printer is equipped with an ink backset, the data obtained from the ink back are compared with the data obtained from the memory chip in which the data about this ink bag are written, and the compatibility of a memory chip and the ink back is distinguished. Therefore, according to this invention according to claim 15, the same operation effectiveness as said claim 10 can be acquired.

[0026] In invention according to claim 16, a printer is equipped with an ink backset, and when it is supervised from the data obtained from the ink back, and the data obtained from the memory chip in which the data about this ink bag are written that supervise said ink back and desorption exchange of said memory chip, and these ink back and desorption exchange of a memory chip are not performed mostly at the same stage, it is made to perform warning actuation. Therefore, according to this invention according to claim 16, the same operation effectiveness as said claim 11 can be acquired.

[0027]

[Embodiment of the Invention] (The 1st operation gestalt) Below, the 1st operation gestalt of this invention is explained based on drawing 1 - drawing 5 .

[0028] First, the ink bag set of this operation gestalt is explained. As shown in drawing 1 and drawing 2 , the body 12 of an ink bag of the ink bag 11 is formed in the shape of a software case with the laminate film which vapor-deposited aluminum to the polyethylene film which has for example, gas barrier property, and the ink for printing is held in the interior. The ink feed hopper 13 protrudes on the edge of the body 12 of an ink bag, and the ink within the body 12 of an ink bag is taken out from this ink feed hopper 13.

[0029] The identification marking 14 which consists of a bar code etc. is given to the edge

section of the rear face of said body 12 of an ink bag. Data, such as a class of the attribute data about the ink in the ink bag 11, for example, ink, a color, the date of manufacture, and a plant, are recorded on this identification marking 14.

[0030] The stowage 15 of the shape of a transparent pocket is formed in the center section of the top face of said body 12 of an ink bag. The memory chip 16 which makes the ink bag 11 and another object in a stowage 15 is contained possible [ejection], and this memory chip 16 consists of contact mold memory IC etc. The storage region for writing in data, such as the attribute data of the ink in the ink bag 11 corresponding to said identification marking 14, for example, the class of ink, a color, the date of manufacture, and a plant, is established in this memory chip 16. Furthermore, the storage region for writing in the amount of existing [used] and residue of ink in the ink bag 11 is established in the memory chip 16.

[0031] Next, the printer which equips with and uses the ink bag set which consists of said ink bag 11 and memory chip 16 is explained. As shown in drawing 1 and drawing 2 , along with the platen which a print head 21 does not illustrate, it is arranged movable by the body 20 of a printer. In the front face of 1 side of the body 20 of a printer, partition formation of two or more bag attaching parts 22 is carried out, and a pair each guide plate 22a is prepared in those bag attaching parts 22. And the ink bag 11 of the shape of said software case is set to each bag attaching part 22 in the condition of having held in the cartridge case 23.

[0032] Said cartridge case 23 is formed in the shape of a hard case by plastics etc. Output port 24 is formed in the end side of a cartridge case 23, and the ink feed hopper 13 of the ink bag 11 held in the cartridge case 23 is projected outside from this output port 24.

[0033] A window part 25 is formed in the 1 side base of said cartridge case 23, and the identification marking 14 on the ink bag 11 held in the cartridge case 23 is exposed to a lower part from this window part 25. In case the chip applied part 26 is formed in the external surface of a cartridge case 23, the ink bag 11 is held in a cartridge case 23 and it sets to the bag attaching part 22 so that output port 24 may be adjoined, a memory chip 16 is taken out from the stowage 15 on the ink bag 11, and this chip applied part 26 is equipped.

[0034] As shown in drawing 1 and drawing 2 , opposite arrangement of the supply needle 27 is carried out at each bag attaching part 22 of said body 20 of a printer, and it connects with the print head 21 through the supply tube 28. And where the ink bag 11 is held in a cartridge case 23, when it is set to the bag attaching part 22, the supply needle 27 penetrates the ink feed hopper 13 of the ink bag 11, and is inserted into the body 12 of an ink bag. In this condition, with printing actuation of a print head 21, the ink in the ink bag 11 is supplied to a print head 21 through the supply needle 27 and the supply tube 28, and printing is performed on the record form P.

[0035] The mark reading section 29 is arranged in the edge of one guide plate 22a of each of said bag attaching part 22, and the attribute data of ink is read in the identification marking 14 on the ink bag 11 by this mark reading section 29. The data delivery section 30 is arranged in the edge of guide plate 22a of another side of each bag attaching part 22, and reading is performed in the write-in list about the attribute data of ink, and the data of the amount of existing [used], or a residue by this data delivery section 30 in the state of contact to the memory chip 16 on a cartridge case 23.

[0036] Next, the circuitry of the printer which consists of the above structures is explained. As shown in drawing 3 , the central processing unit (CPU) 33 which controls actuation of the whole printer is formed in the body 20 of a printer, and the random access memory (RAM) 35 which stores temporarily the read-only memory (ROM) 34 which stored the program of operation, and working data is connected to the CPU33. The printing mechanism 36 containing said print head

21 is connected to CPU33, and an active signal is outputted to this printing mechanism 36. Moreover, the mark reading section 29 and the data delivery section 30 are connected to CPU33, and delivery of the attribute data of ink etc. is performed between this mark reading section 29 and the data delivery section 30.

[0037] Furthermore, the external personal computer (it is hereafter indicated as PC) 38 is connected to CPU33 within said body 20 of a printer through an interface 37, and delivery of print data or an alarm display signal is performed to it between this PC38. When the displays 39, such as a display unit, are connected to PC38 and an alarm display signal is outputted to PC38 from CPU33, a warning message is displayed on this display 39. A keyboard 40 is connected to PC38 and various data are inputted from this keyboard 40.

[0038] Moreover, in this operation gestalt, while the monitor means for supervising desorption exchange of the ink bag 11 and a memory chip 16 by said CPU33, the mark reading section 29, and the data delivery section 30 is made to serve a double purpose, the distinction means is constituted by CPU33. And when it is checked by the mark reading section 29 and the data delivery section 30 that desorption exchange of the ink bag 11 and a memory chip 16 is not performed mostly at the same stage, That is, when it is detected that desorption exchange of another side is not carried out even if it goes through predetermined time after desorption exchange of either of the ink bag 11 and a memory chip 16 was carried out, the alarm display signal to which desorption exchange of another side is urged from CPU33 is outputted.

[0039] Furthermore, the distinction means is constituted by said CPU33 in this operation gestalt. And the attribute data of the ink read in the identification marking 14 on the ink bag 11 in the mark reading section 29 when the body 20 of a printer was equipped with the ink bag 11 and a memory chip 16, The attribute data of the ink read in the memory chip 16 in the data delivery section 30 is compared by CPU33, the compatibility of the ink bag 11 and a memory chip 16 is distinguished, and when it is nonconformance, an alarm display signal to that effect is outputted. [0040] And in case the ink in the ink bag 11 with which said bag attaching part 22 was equipped is used and printing is performed by the print head 21 on the record form P, based on control of CPU33, the data of the amount of existing [used] of ink or a residue are written in a memory chip 16 by the data delivery section 30. And when the amount of the addition used or addition residue of ink written in the memory chip 16 reaches a predetermined value, the alarm display signal to which exchange of the ink bag 11 is urged from CPU33 is outputted.

[0041] Next, actuation of the printer equipped with the ink bag set and it which were constituted as mentioned above is explained. First, the monitor actuation at the time of desorption exchange of the ink bag 11 and a memory chip 16 is explained according to the flow chart of drawing 4 . If desorption exchange of either of the ink bag 11 and a memory chip 16 is carried out, the exchange actuation will be detected in the mark reading section 29 or the data delivery section 30 (step S1). Then, to carry out desorption exchange of another side of the ink bag 11 and a memory chip 16, and to detect the exchange actuation in the data delivery section 30 or the mark reading section 29 is waited (step S2).

[0042] And when desorption exchange of another side is not performed even if it carries out fixed time amount progress after desorption exchange of one side of the ink bag 11 and a memory chip 16 is carried out, an alarm display signal is outputted to a display 39 through PC38 from (step S3) and CPU33. Thereby, a warning message, such as "please exchange for an ink bag [finishing / exchange] at a corresponding memory chip" or "please exchange for a memory chip [finishing / exchange] and a corresponding ink bag", is displayed on a display 39 (step S4).

[0043] Subsequently, reading and processing actuation of data at the time of wearing of the ink

bag 11 and a memory chip 16 are explained according to the flow chart of drawing 5 . If a cartridge case 23 is set to the bag attaching part 22 of the body 20 of a printer where the chip applied part 26 of a cartridge case 23 is equipped with a memory chip 16 while the ink bag 11 is held in a cartridge case 23, the data of the identification marking 14 on the ink bag 11 will be read by the mark reading section 29 (step S5). It is distinguished whether with it, the data of a memory chip 16 are read by the data delivery section 30 (step S6), and the reading data from the memory chip 16 exist (step S7).

[0044] In distinction of said step S7, when the reading data from a memory chip 16 exist, it is distinguished whether the reading data from identification marking 14 and the reading data from a memory chip 16 are in agreement (step S8). And when the ink bag 11 and a memory chip 16 do not correspond when both data are not in agreement namely, an alarm display signal is outputted to a display 39 through PC38 from CPU33. Thereby, for example, "ink bag and a memory chip are not in agreement. A warning message, such as please reequip a match", is displayed on a display 39 (step S9).

[0045] On the other hand, when the reading data from a memory chip 16 do not exist in distinction of said step S7, the attribute data of the ink read in identification marking 14 is written in a memory chip 16 by the data delivery section 30 (step S10). Then, if printing actuation is started based on the attribute data of a memory chip 16, use of the ink in the ink bag 11 will be detected (step S11), and the data or the residue of the amount of existing [used] of the ink will be written in a memory chip 16 by the data delivery section 30 (step S12). Moreover, in distinction of said step S8, when the reading data from identification marking 14 and the reading data from a memory chip 16 are in agreement, it goes on to steps S11 and S12, and the aforementioned actuation is performed.

[0046] Then, actuation of said steps S11-S13 is repeatedly performed until it is distinguished whether the amount of the addition used or addition residue of ink written in said memory chip 16 reached the predetermined value (step S13) and the amount of the addition used or addition residue of ink reaches a predetermined value. And if the amount of the addition used or addition residue of ink reaches a predetermined value, an alarm display signal will be outputted to a display 39 through PC38 from CPU33. Thereby, the ink of for example, "ink bag was lost. A warning message, such as please exchange for a new thing", is displayed on a display 39 (step S14).

[0047] Therefore, according to this operation gestalt, the following effectiveness can be acquired.

(1) It consists of the ink bag 11 with which the ink for printing was held, its ink bag 11, and a memory chip 16 in which the data about nothing and the ink bag 11 are written in another object in this ink bag set. For this reason, management of the amount of the ink used or a residue can be performed every ink bag 11 by writing the amount used or the residue of ink in a memory chip 16. Therefore, by detaching and attaching a memory chip 16 to coincidence, when using it again, equipping a printer with the ink bag 11 after being in the middle of use of ink and removing the ink bag 11 from a printer, management of the amount of the ink used or a residue can be performed continuously. And since writing and elimination are also free while a lot of data can be memorized by the memory chip unlike the identification marking which consists of a bar code, management of the ink bag 11 can be ensured finely. Moreover, even if all the ink of the ink bag 11 is used, since the data of other ink bags 11 can also be written in, unlike the ink bag 11, a memory chip 16 can also be used for a memory chip 16 as it is.

[0048] (2) In this ink bag set, even if the ink bag 11 consists of software cases, a memory chip 16

can be formed corresponding to the ink bag 11, because the memory chip 16 is the ink bag 11 and another object.

[0049] (3) In this ink bag set, it has the stowage 15 for said ink bag 11 to contain a memory chip 16. For this reason, while being able to deal with them in one by containing a memory chip 16 to the stowage 15 of the ink bag 11, even if a memory chip 16 is another object, there is little fear of loss of a memory chip 16.

[0050] (4) In this ink bag set, identification marking 14 is given to said ink bag 11. For this reason, when a printer is equipped with the ink bag 11 and a memory chip 16 by writing the data of the identification marking 14 on the ink bag 11 in a memory chip 16, it can be used for decision of those compatibility etc.

[0051] (5) In the printer equipped with this ink bag set, the bag attaching part 22 for setting the ink bag 11 with which the ink for printing was held, and the data delivery section 30 which delivers data between the ink bag 11 and the memory chip 16 of another object are formed. For this reason, while setting the ink bag 11 to the bag attaching part 22, where the data delivery section 30 and a corresponding location are equipped with a memory chip 16, management of the amount of the ink used or a residue etc. can be performed easily.

[0052] (6) In this printer, it is in the condition which held the ink bag 11 which consists of a software case in the cartridge case 23, and it is constituted so that it may set to the bag attaching part 22. For this reason, even if the ink bag 11 is a software case, it can set to the body 20 of a printer easily and certainly.

[0053] (7) In this printer, said memory chip 16 memorizes the attribute data of ink, and reads attribute data from a memory chip 16 for printing actuation of said data delivery section 30. For this reason, the attribute data of ink can be read from a memory chip 16, and printing actuation can be controlled exactly.

[0054] (8) In this printer, when said data delivery section 30 writes in the data of the amount of existing [used] of ink, or a residue to a memory chip 16 and the amount of the addition used or an addition residue reaches a predetermined value, control action for warning is performed. For this reason, the residue or the amount of ink of the ink bag 11 used can be managed proper, it can warn of ink having been lost exactly, and the ink bag 11 can be exchanged to suitable timing. Therefore, the inconvenient situations, such as an ink piece, can be prevented beforehand.

[0055] (9) In this printer, the data read in the memory chip 16 by the data delivery section 30 are compared with the data read in identification marking 14 by the mark reading section 29, and the compatibility of a memory chip 16 and the ink bag 11 is distinguished. For this reason, when a printer is equipped with the ink bag 11 and a memory chip 16, compatibility of that memory chip 16 and ink bag 11 can be judged correctly. Therefore, the inequality of a memory chip 16 and the ink bag 11 can be controlled.

[0056] (10) In this printer, when desorption exchange of the ink bag 11 and a memory chip 16 is supervised and it is supervised that desorption exchange of that ink bag 11 and a memory chip 16 is not performed mostly at the same stage, control action for warning is performed. For this reason, in case desorption exchange of the ink bag 11 and the memory chip 16 is carried out to a printer, it can supervise proper whether those desorption exchange was performed mostly at the same stage. Therefore, it can control that desorption exchange only of either of the ink bag 11 and a memory chip 16 is carried out, and can prevent that exchange of another side is forgotten [most].

[0057] (11) In this printer, a means to supervise desorption exchange of said ink bag 11 and a memory chip 16 is constituted between memory chips 16 by the data delivery section 30 which

delivers data, and the mark reading section 29 which reads the identification marking 14 attached on the ink bag 11. For this reason, it is not necessary to prepare a pilot switch etc. independently as a monitor means, and a configuration can be simplified.

[0058] (The 2nd operation gestalt) Next, the 2nd operation gestalt of this invention is explained focusing on a different part from said 1st operation gestalt. In addition, in each operation gestalt after the 2nd operation gestalt, it explains focusing on a different part as mentioned above from the 1st operation gestalt.

[0059] Now, in this 2nd operation gestalt, as shown in drawing 6, each bag attaching part 22 and two or more corresponding chip insertion sections 43 are formed in the front face of 1 side of the body 20 of a printer. And where the ink bag 11 is held in a cartridge case 23, in case it sets to the bag attaching part 22 of a printer, a memory chip 16 is taken out from the stowage 15 on the ink bag 11, and it inserts in the bag attaching part 22 and the corresponding chip insertion section 43.

[0060] In the body 20 of a printer, two or more data delivery sections 30 are arranged so that it may correspond with said each chip insertion section 43. And delivery of the attribute data of the ink in the ink bag 11 and the data of the amount of existing [used] of ink and a residue is performed between the memory chips 16 and the data delivery sections 30 which were inserted into the chip insertion section 43.

[0061] Therefore, according to this 2nd operation gestalt, the effectiveness of a publication and the same effectiveness can be acquired to (1) - (11) in said 1st operation gestalt.

[0062] (The 3rd operation gestalt) Next, the 3rd operation gestalt of this invention is explained.

[0063] Now, in this 3rd operation gestalt, as shown in drawing 7, the memory chip 16 is attached to the edge of the ink bag 11 through the connection funiculus 44. And where the ink bag 11 is held in a cartridge case 23, in case it sets to the bag attaching part 22 of a printer, the chip applied part 26 of the external surface of a cartridge case 23 is equipped with the memory chip 16 attached to the ink bag 11.

[0064] Therefore, according to this 3rd operation gestalt, in addition to the effectiveness of a publication, the following effectiveness can be acquired to (1) in said each operation gestalt, (2), and (4) - (11).

[0065] (12) In this ink bag set, the memory chip 16 is attached through the connection funiculus 44 to the ink bag 11. For this reason, where the ink bag 11 and a memory chip 16 are connected by the connection funiculus 44, while being able to deal with it in one and being able to equip easily to a printer, most loss of a memory chip 16 can be prevented.

[0066] (The 4th operation gestalt) Next, the 4th operation gestalt of this invention is explained. Now, in this 4th operation gestalt, as shown in drawing 8, it is sold in the condition of having held in the bag maintenance case 45 where the ink bag 11 which consists of a software case consists of a hard case, and breakage by the external force of the ink bag 11 is controlled by this. Moreover, the memory chip 16 is also held in the same bag maintenance case 45 as the ink bag 11.

[0067] And in case the ink bag 11 is picked out from the bag maintenance case 45 and it sets to the bag attaching part 22 of a printer through a cartridge case 23, a memory chip 16 is taken out from the bag maintenance case 45, and the chip applied part 26 on a cartridge case 23 is equipped, or it inserts in the chip insertion section 43 of the body 20 of a printer.

[0068] Therefore, according to this 4th operation gestalt, the same effectiveness as (1) in said each operation gestalt, (2), and (4) - (11) can be acquired.

[0069] (The 5th operation gestalt) Next, the 5th operation gestalt of this invention is explained.

[0070] Now, in this 5th operation gestalt, as shown in drawing 9, packing maintenance of the

ink bag 11 which consists of two or more software cases is carried out as 1 set into the bag maintenance case 45 which consists of a hard case. In this case, two or more ink bags 11 which two or more ink bags 11 which held unique ink were packed up as 1 set, or held the ink of the same color are packed up as 1 set. And breakage by the external force of each ink bag 11 is controlled with this packing.

[0071] Moreover, in said bag maintenance case 45, one memory chip 16 is held corresponding to 1 set of ink bags 11. The storage region which can write in the attribute data of the ink corresponding to the identification marking 14 of two or more ink bags 11, and the storage region which can write in the data of the amount of existing [used] of ink and the data of a residue about two or more ink bags 11 are established in this memory chip 16.

[0072] And every one ink bag 11 which made 1 set two or more ink bags 11 which held unique ink, and took out from the bag maintenance case 45, or held the ink of the same color is picked out from the bag maintenance case 45, and it sets to the bag attaching part 22 of a printer through a cartridge case 23. In this case, a memory chip 16 is taken out from the bag maintenance case 45, and the chip applied part 26 on a cartridge case 23 is equipped, or it inserts in the chip insertion section 43 of the body 20 of a printer. In this case, data processing of the ink about two or more ink bags 11 is performed by one memory chip 16.

[0073] Therefore, according to this 5th operation gestalt, in addition to the effectiveness of a publication, the following effectiveness can be acquired to (1) in said each operation gestalt, (2), and (4) - (11).

[0074] (13) In this ink bag set, two or more ink bags 11 are held as 1 set at the bag maintenance case 45. For this reason, it is convenient, when using two or more ink bags 11 which held unique ink to coincidence for a printer, equipping with them, when using for a printer two or more ink bags 11 which held the ink of the same color, equipping it with them in order, or when selling.

[0075] (14) In this ink bag set, the memory chip 16 is formed corresponding to 1 set of ink bags 11. For this reason, the attribute data of two or more ink bags 11 by one memory chip 16 etc. can be processed easily.

[0076] (15) In this ink bag set, the data corresponding to the identification marking 14 of two or more ink bags 11 are written in said memory chip 16. For this reason, the attribute data read in the identification marking 14 of two or more ink bags 11 by one memory chip 16 can be written in every ink bag 11 certainly, and data processing of those ink bags 11 can be performed easily.

[0077] (16) In this ink bag set, the storage region which can write the data about two or more ink residues or amount of the ink bag 11 used in said memory chip 16 is prepared. For this reason, when using for a printer two or more ink bags 11 which held the ink of the same color, equipping it with them in order, the amount used or the residue of ink of each ink bag 11 can be managed continuously.

[0078] (17) In this ink backset, since the ink back's information can be written in a memory chip 16 when it is the same ink back altogether, a memory chip 16 can be used about.

[0079] (The 6th operation gestalt) Next, the 6th operation gestalt of this invention is explained. Now, in this 6th operation gestalt, as shown in drawing 10, packing maintenance of the ink bag 11 which consists of two or more software cases where unique ink was held is carried out as 1 set into the bag maintenance case 45 which consists of a hard case. Two or more bores 46 are formed in the side attachment wall of the bag maintenance case 45, and the ink feed hopper 13 of each ink bag 11 is exposed outside through these bores 46.

[0080] One memory chip 16 is attached in the side-attachment-wall external surface of said bag maintenance case 45 corresponding to 1 set of ink bags 11. The storage region which can write in

the attribute data of the ink corresponding to the identification marking 14 of two or more ink bags 11, and the storage region which can write in the data of the amount of existing [used] of ink and the data of a residue about two or more ink bags 11 are established in this memory chip 16.

[0081] Moreover, the bag attaching part 22 in a printer is constituted so that two or more ink bags 11 can be set in the condition [having held in the bag maintenance case 45]. And while two or more supply needles 27 which can be penetrated to the ink feed hopper 13 of each ink bag 11 are arranged, the data delivery section 30 which can respond to the memory chip 16 on the bag maintenance case 45 is formed in this bag attaching part 22.

[0082] Therefore, according to this 6th operation gestalt, in addition to the effectiveness of a publication, the following effectiveness can be acquired to (1) in said each operation gestalt, (2), and (4) - (11) and (13) - (16).

[0083] (18) The memory chip 16 is attached in the bag maintenance case 45 in this ink bag set. For this reason, if the ink bag 11 is set to the bag attaching part 22 in the condition of having been held at the bag maintenance case 45, it can equip with the memory chip 16 attached in that bag maintenance case 45 easily to a printer.

[0084] (19) In the printer equipped with this ink bag, the bag attaching part 22 can set now in the condition [having held two or more ink bags 11 in the bag maintenance case 45]. For this reason, two or more ink bags 11 can be picked out from the bag maintenance case 45, it is not necessary to set to the bag attaching part 22, and that set actuation can be performed easily.

[0085] (Example of modification) In addition, it changes as follows and this operation gestalt can also take shape.

- In the aforementioned 1st and 3rd operation gestalt, without forming the ink bag 11 in a hard case, and holding the ink bag 11 in a cartridge case 23, you may constitute so that it may set to the bag attaching part 22 of a printer directly. In this case, the memory chip 16 which was contained by the stowage 15 on the ink bag 11, or was attached to the ink bag 11 through the connection funiculus 44 is constituted so that it may insert in the chip insertion section 43 of the body 20 of a printer like said 2nd operation gestalt.

[0086] - In the aforementioned 4th operation gestalt, without using a cartridge case 23, you may constitute from a condition [having held the ink bag 11 which consists of a software case in the bag maintenance case 45 which consists of a hard case] so that it may set to the bag attaching part 22 of a printer directly. In this case, like said 6th operation gestalt, a memory chip 16 is constituted so that it may attach in the side-attachment-wall external surface of the bag maintenance case 45.

[0087] - You may make it form a memory chip 16 so that it may correspond to each of 1 set of ink bags 11, and may make it form memory chips 16 fewer than the number of 1 set of ink bags 11 in the aforementioned 5th operation gestalt.

[0088] - In the aforementioned 6th operation gestalt, two or more ink bags 11 may be formed in a hard case, and you may constitute from a condition [having held those ink bags 11 in the bag maintenance case 45] so that it may set to the bag attaching part 22 of a printer.

[0089] - In each aforementioned operation gestalt, it may constitute from non-contact mold memory, and a memory chip 16 may be constituted so that data may be transmitted through the data delivery section 30, light, etc. which were prepared in the printer side.

[0090] - In each aforementioned operation gestalt, the identification marking 14 on the ink bag 11 may be omitted, and the attribute data of the ink about the ink bag 11 etc. may be beforehand written in to a memory chip 16, and you may constitute so that printing actuation may be

controlled.

[0091] - In each aforementioned operation gestalt, pilot switches, such as a proximity switch, may be prepared as the ink bag 11 and a monitor means of desorption exchange of a memory chip 16, and you may constitute so that a detecting signal may be outputted from these pilot switches at the time of desorption exchange of the ink bag 11 and memory chip 16 to a printer.

[0092] - In each aforementioned operation gestalt, PC38 of the exterior of the body 20 of a printer may be made to perform control action of warning when the monitor, the amount of the addition used, or addition residue of decision of the adaptability of the ink bag 11 and memory chip 16 by CPU33 stored in the body 20 of a printer or desorption exchange of the ink bag 11 and a memory chip 16 reaches a predetermined value etc. Moreover, it not only connects with PC, but the printer connected to fax or a copy may be made to perform. That is, all the computers [the computer of a publication] that can be carried out by not only PC generally called a computer but the processing operation shall be included in a claim.

[0093] Next, the technical thought except having indicated to the claim which can be grasped from the above-mentioned operation gestalt and example of another is indicated below with those effectiveness.

[0094] (1) An ink bag set given in any 1 term of claims 1 - claims 5 which are characterized by giving identification marking to said ink bag.

[0095] Therefore, when a printer is equipped with an ink bag and a memory chip by writing the data of the identification marking on an ink bag in a memory chip according to invention given in this (1), it can be used for decision of those compatibility etc.

[0096] (2) An ink bag set given in any 1 term of claim 1 characterized by holding in a bag maintenance case, having used as 1 set the ink bag which is plurality - claim 5, and the aforementioned (1) terms.

[0097] Therefore, according to invention given in this (2), two or more ink bags are held as 1 set at the bag maintenance case. For this reason, it is convenient when [which uses two or more ink bags which held the ink of the same color for a printer, equipping it with them in order] using two or more ink bags which held unique ink to coincidence for a printer, equipping with them, and case, or bundling up and selling.

[0098] (3) An ink bag set given in the above (2) characterized by attaching said memory chip in a bag maintenance case. Therefore, according to invention given in this (3), it can equip with the memory chip attached in the bag maintenance case easily to a printer with an ink bag.

[0099] (4) Said memory chip is an ink bag set given in the aforementioned (2) term or the aforementioned (3) term characterized by preparing corresponding to 1 set of ink bags.

Therefore, according to invention given in this (4), the attribute data of two or more ink bags by one memory chip etc. can be processed easily.

[0100] (5) The ink bag set according to claim 6 characterized by establishing the storage region which can write in the data about two or more amount used or residues of ink of an ink bag in said memory chip.

[0101] Therefore, when using two or more ink bags which held the ink of the same color for a printer according to invention given in this (5), equipping it with them in order, the amount used or the residue of ink of each ink bag can be managed continuously.

[0102] (6) Said bag set section is a printer according to claim 8 characterized by constituting so that the bag maintenance case where two or more ink bags are held may be set. Therefore, according to invention given in this (6), two or more ink bags can be easily set to the bag set section in the condition [having held in the bag maintenance case].

[0103] (7) It is a printer given in any of claim 8 characterized by said data delivery section reading attribute data from a memory chip for printing actuation, claim 10, claim 11, and the aforementioned (6) term said memory chip memorizes the attribute data which is ink, and they are.

[0104] Therefore, according to invention given in this (7), the attribute data of ink can be read from a memory chip, and printing actuation can be controlled exactly.

[0105] (8) said -- data -- delivery -- the section -- a memory chip -- receiving -- ink -- existing -- the amount used -- data -- or -- a residue -- data -- writing in -- addition -- the amount used -- or -- addition -- a residue -- predetermined -- a value -- having reached -- the time -- warning -- a sake -- control action -- carrying out -- things -- the description -- ** -- carrying out -- a claim -- eight -- a claim -- ten -- a claim -- 11 -- the above -- (-- six --) -- a term -- and -- the above -- (-- seven --) -- a term -- any -- or -- a publication -- a printer -- .

[0106] Therefore, according to invention given in this (8), the amount used or the residue of ink of an ink bag can be managed proper, it can warn of ink having been lost exactly, and an ink bag can be exchanged to suitable timing. Therefore, the inconvenient situations, such as an ink piece, can be prevented beforehand.

[0107] (9) The printer system which consists of a printer equipped with the bag set section for setting the ink bag with which the ink for printing was held, and the data delivery section which delivers data between said ink bags and memory chips of another object, and a computer which was made to perform control action of warning when the signal from this printer was received and the amount of the addition used or the addition residue of this ink reached a predetermined value.

[0108] Therefore, according to invention given in this (9), the amount used or the residue of ink of an ink bag can be managed proper, it can warn of ink having been lost exactly, and an ink bag can be exchanged to suitable timing. Therefore, the inconvenient situations, such as an ink piece, can be prevented beforehand. Moreover, by not preparing the device in which control action of warning is performed in the interior of a printer, in order to perform this, since ** is also good, the configuration of a printer can be simplified.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The perspective view showing the printer equipped with the ink bag set of the 1st operation gestalt.

[Drawing 2] The decomposition perspective view expanding and showing an ink bag and its wearing configuration.

[Drawing 3] The block diagram showing the circuitry containing the printer of drawing 1 .

[Drawing 4] The flow chart explaining the alarm display actuation at the time of exchange of an ink bag and a memory chip.

[Drawing 5] The flow chart explaining reading and processing actuation of data at the time of wearing of an ink bag and a memory chip.

[Drawing 6] It is a perspective view about the printer of the 2nd operation gestalt.

[Drawing 7] The perspective view showing the ink bag set of the 3rd operation gestalt.

[Drawing 8] The perspective view showing the ink bag set of the 4th operation gestalt.

[Drawing 9] The perspective view showing the ink bag set of the 5th operation gestalt.

[Drawing 10] The perspective view showing the ink bag set and its wearing configuration of the 6th operation gestalt.

[Description of Notations]

- 11 -- Ink bag
- 12 -- Body of an ink bag
- 14 -- Identification marking
- 15 -- Stowage
- 16 -- Memory chip
- 20 -- Body of a printer
- 21 -- Print head
- 22 -- Bag set section
- 23 -- Cartridge case
- 26 -- Chip applied part
- 29 -- The mark reading section which makes a monitor means serve a double purpose
- 30 -- The data delivery section which makes a monitor means serve a double purpose
- 33 -- CPU which constitutes a control means and a distinction means
- 38 -- Computer
- 39 -- Display
- 44 -- Connection funiculus
- 45 -- Bag maintenance case

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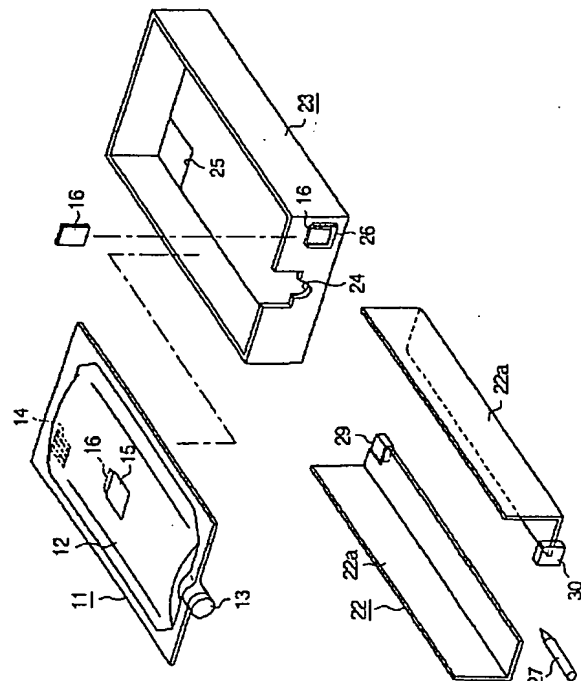
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(54) 【発明の名称】 インクバッグセット、それを装着するようにしたプリンタ及びプリンタシステム並びにそれを用いた制御方法

(57) 【要約】

【課題】 インクの使用量又は残量の管理をインクバッグごとに行うことができるインクバッグセット、それを装着するようにしたプリンタ及びプリントシステムを提供する。

【解決手段】 印刷用のインクが収容されたインクバッグ11と、そのインクバッグ11と別体をなし、インクバッグ11に関するデータが書き込まれるメモリチップ16とを備える。メモリチップ16は、インクバッグ11上に設けられた収納部15に収納し、または連結索を介してインクバッグ11に付設し、あるいはインクバッグ11と同一のバッグ保持ケース内に収容する。プリンタには、インクバッグ11をセットするためのバッグ保持部22と、メモリチップ16との間でデータの受け渡しを行うデータ受け渡し部30とを備える。



【特許請求の範囲】

【請求項 1】 印刷用のインクが収容されたインクバッグと、

そのインクバッグと別体をなし、インクバッグに関するデータが書き込まれるメモリチップとよりなることを特徴とするインクバッグセット。

【請求項 2】 前記インクバッグは、ソフトケースよりなることを特徴とする請求項 1 に記載のインクバッグセット。

【請求項 3】 前記インクバッグは、メモリチップを収納するための収納部を有することを特徴とする請求項 1 または請求項 2 に記載のインクバッグセット。

【請求項 4】 前記メモリチップをインクバッグに対して、連結索を介して付設したことを特徴とする請求項 1 または請求項 2 に記載のインクバッグセット。

【請求項 5】 前記インクバッグとメモリチップとを 1 つのバッグ保持ケースに収容したことを特徴とする請求項 1 または請求項 2 に記載のインクバッグセット。

【請求項 6】 印刷用のインクが収容されるとともに識別マークが付されたインクバッグと、そのインクバッグと別体をなし、前記識別マークに対応するデータが書き込まれるメモリチップとよりなることを特徴とするインクバッグセット。

【請求項 7】 前記メモリチップには、複数のインクバッグの識別マークに対応するデータが書き込まれることを特徴とする請求項 6 に記載のインクバッグセット。

【請求項 8】 印刷用のインクが収容されたインクバッグをセットするためのバッグセット部と、前記インクバッグと別体のメモリチップとの間でデータの受け渡しをするデータ受け渡し部とを備えたことを特徴とするプリンタ。

【請求項 9】 前記バッグセット部は、ソフトケースよりなるインクバッグをセットするように構成したことを特徴とする請求項 8 に記載のプリンタ。

【請求項 10】 印刷用のインクが収容されたインクバッグをセットするためのバッグセット部と、前記インクバッグと別体のメモリチップとの間でデータの受け渡しをするデータ受け渡し部と、前記インクバッグ上に付された識別マークを読み取るマーク読み取り部と、

前記データ受け渡し部によりメモリチップから読み取られたデータと、マーク読み取り部により識別マークから読み取られたデータとを比較して、メモリチップとインクバッグとの適合性を判別する判別手段とを備えたことを特徴とするプリンタ。

【請求項 11】 印刷用のインクが収容されたインクバッグをセットするためのバッグセット部と、前記インクバッグと別体のメモリチップとの間でデータの受け渡しをするデータ受け渡し部と、前記インクバッグ及びメモリチップの脱着交換を監視す

る監視手段と、

その監視手段によりインクバッグ及びメモリチップの脱着交換がほぼ同一時期に行われないことが監視されたとき、警告のための制御動作を行わせる制御手段とを備えたことを特徴とするプリンタ。

【請求項 12】 前記監視手段は、メモリチップとの間でデータの受け渡しを行うデータ受け渡し部と、インクバッグ上に付された識別マークを読み取るマーク読み取り部とよりなることを特徴とする請求項 11 に記載のプリンタ。

【請求項 13】 印刷用のインクが収容されたインクバッグをセットするためのバッグセット部と、前記インクバッグと別体のメモリチップとの間でデータの受け渡しをするデータ受け渡し部とを備えたプリンタと、

該プリンタからの信号を受け取って、前記データ受け渡し部によりメモリチップから読み取られたデータと、マーク読み取り部により識別マークから読み取られたデータとを比較して、メモリチップとインクバッグとの適合性を判別する判別動作を行うようにしたコンピュータとから構成されるプリンタシステム。

【請求項 14】 印刷用のインクが収容されたインクバッグをセットするためのバッグセット部と、前記インクバッグと別体のメモリチップとの間でデータの受け渡しをするデータ受け渡し部とを備えたプリンタと、

該プリンタからの信号を受け取って、前記インクバッグ及びメモリチップの脱着交換を監視し、インクバッグ及びメモリチップの脱着交換がほぼ同一時期に行われないことが監視されたとき、警告のための制御動作を行うようにしたコンピュータとから構成されるプリンタシステム。

【請求項 15】 インクバックセットをプリンタに装着し、インクバックから得られたデータと、このインクバッグに関するデータが書き込まれるメモリチップから得られたデータとを比較して、メモリチップとインクバックとの適合性を判別することを特徴とする制御方法。

【請求項 16】 インクバックセットをプリンタに装着し、

インクバックから得られたデータと、このインクバッグに関するデータが書き込まれるメモリチップから得られたデータとから、前記インクバック及び前記メモリチップの脱着交換を監視し、これらインクバック及びメモリチップの脱着交換がほぼ同一時期に行われないことが監視されたとき、警告動作を行うようにしたことを特徴とする制御方法。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】 この発明は、例えばノズルか

らインク滴を吐出して、記録用紙に印刷を行うインクジェット式のプリンタに用いられるインクバッグセット、及びそのインクバッグセットを装着するようにしたプリンタに関するものである。

【0002】

【従来の技術】この種のプリンタに使用されるインクバッグとしては、ソフトケース内に印刷用のインクを収容するとともに、そのソフトケースの外表面に識別マークを付したものが知られている。前記識別マークにはインク色等のインクの属性に関するデータが記憶され、インクバッグがプリンタに装着された状態で、プリンタに設けられた読み取り部により、識別マークからインクの属性データが読み出されるようになっている。そして、インクバッグのインクの使用量又は残量の管理は、プリンタの制御部で行われ、1つのインクバッグのインク使用量又は残量が所定値に達したとき、警告表示等が行われるようになっている。

【0003】

【発明が解決しようとする課題】ところが、この従来のインクバッグにおいては、前述のようにインクバッグの外表面に識別マークが固定的に設けられ、インクの残量管理がプリンタの制御部で行われている。このため、インクバッグをインクの使用途中でプリンタから取り外した後、再びそのインクバッグを、あるいは別のインクバッグをプリンタに装着して使用する場合、実際の使用量（残量）とプリンタの制御部に記憶されたデータの使用量（残量）とが相違し、インク使用量（残量）の管理を継続して行うことができないという問題があった。

【0004】また、識別マークは1次元あるいは2次元のバーコードが使用されることが多く、しかしながら、このようなバーコードは、記憶容量が少なく、かつ書き換えもできないため、十分な管理を行い得ない。

【0005】この発明は、このような従来の技術に存在する問題点に着目してなされたものである。その目的は、インクの使用量又は残量の管理をインクバッグごとに行うことができるとともに、インクバッグに関する多量のデータを取り扱うことができるインクバッグセット、それを装着するようにしたプリンタ及びプリンタシステムを提供することにある。

【0006】

【課題を解決するための手段】上記の目的を達成するために、インクバッグセットに係る請求項1に記載の発明では、印刷用のインクが収容されたインクバッグと、そのインクバッグと別体をなし、インクバッグに関するデータが書き込まれるメモリチップとよりなることを特徴とするものである。

【0007】従って、この請求項1に記載の発明によれば、メモリチップにインクの使用量又は残量を書き込むことによって、インクの使用量又は残量の管理をインクバッグごとに行うことができる。よって、インクバッグ

をインクの使用途中でプリンタから取り外した後、そのインクバッグを再びプリンタに装着して使用する場合、インクの使用量又は残量の管理を継続して行うことができる。また、メモリチップには、多量のデータを書き込むことができるため、インクバック管理を多量のデータに基づいて充分に行うことができる。

【0008】請求項2に記載の発明では、請求項1に記載の発明において、前記インクバッグは、ソフトケースよりなることを特徴とするものである。従って、この請求項2に記載の発明によれば、メモリチップがインクバッグと別体になっているため、インクバッグがソフトケースからなっているても、メモリチップをインクバッグに対応して設けることができる。

【0009】請求項3に記載の発明では、請求項1または請求項2に記載の発明において、前記インクバッグは、メモリチップを収納するための収納部を有することを特徴とするものである。従って、この請求項3に記載の発明によれば、メモリチップをインクバッグの収納部に収納することによって、それらを一体的に取り扱ってプリンタに装着することができるとともに、メモリチップの紛失の恐れを少なくすることができる。

【0010】請求項4に記載の発明では、請求項1または請求項2に記載の発明において、前記メモリチップをインクバッグに対して、連結索を介して付設したことを特徴とするものである。従って、この請求項4に記載の発明によれば、インクバッグとメモリチップとを、連結索を介して連結された状態で、一体的に取り扱ってプリンタに装着することができるとともに、メモリチップの紛失の恐れを少なくすることができる。

【0011】請求項5に記載の発明では、請求項1または請求項2に記載の発明において、前記インクバッグとメモリチップとを1つのバッグ保持ケースに収容したことを特徴とするものである。従って、この請求項5に記載の発明によれば、インクバッグとメモリチップとを、1つのバッグ保持ケースに収容した状態で、一体的に取り扱ってプリンタに装着することができる。

【0012】また、インクバッグセットに係る請求項6に記載の発明では、印刷用のインクが収容されるとともに識別マークが付されたインクバッグと、そのインクバッグと別体をなし、前記識別マークに対応するデータが書き込まれるメモリチップとよりなることを特徴とするものである。従って、この請求項6に記載の発明によれば、インクバッグ上の識別マークのデータをメモリチップに書き込むことにより、インクバッグ及びメモリチップをプリンタに装着した際に、それらの適合性の判断等に使用することができる。

【0013】請求項7に記載の発明では、請求項6に記載の発明において、前記メモリチップには、複数のインクバッグの識別マークに対応するデータが書き込まれることを特徴とするものである。従って、この請求項7に

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記載の発明によれば、1つのメモリチップに複数のインクバッグの識別マークから読み取られた属性データ等を書き込んで、それらのインクバッグのデータ処理を容易に行うことができる。

【0014】さらに、プリンタに係る請求項8に記載の発明では、印刷用のインクが収容されたインクバッグをセットするためのバッグセット部と、前記インクバッグと別体のメモリチップとの間でデータの受け渡しをするデータ受け渡し部とを備えたことを特徴とするものである。従って、この請求項8に記載の発明によれば、インクバッグをバッグセット部にセットするとともに、メモリチップをデータ受け渡し部と対応する位置に装着した状態で、インクの使用量又は残量の管理等を容易に行うことができる。

【0015】請求項9に記載の発明では、請求項8に記載の発明において、前記バッグセット部は、ソフトケースよりなるインクバッグをセットするように構成したことを特徴とするものである。従って、この請求項9に記載の発明によれば、ソフトケースよりなるインクバッグをバッグセット部に容易にかつ確実にセットすることができる。

【0016】また、プリンタに係る請求項10に記載の発明では、印刷用のインクが収容されたインクバッグをセットするためのバッグセット部と、前記インクバッグと別体のメモリチップとの間でデータの受け渡しをするデータ受け渡し部と、前記インクバッグ上に付された識別マークを読み取るマーク読み取り部と、前記データ受け渡し部によりメモリチップから読み取られたデータと、マーク読み取り部により識別マークから読み取られたデータとを比較して、メモリチップとインクバッグとの適合性を判別する判別手段とを備えたことを特徴とするものである。

【0017】従って、この請求項10に記載の発明によれば、インクバッグ及びメモリチップをプリンタに装着した際に、そのメモリチップとインクバッグとの適合性の判断を正確に行うことができる。よって、メモリチップとインクバッグとの不一致を抑制することができる。

【0018】さらに、プリンタに係る請求項11に記載の発明では、印刷用のインクが収容されたインクバッグをセットするためのバッグセット部と、前記インクバッグと別体のメモリチップとの間でデータの受け渡しをするデータ受け渡し部と、前記インクバッグ及びメモリチップの脱着交換を監視する監視手段と、その監視手段によりインクバッグ及びメモリチップの脱着交換がほぼ同一時期に行われなことが監視されたとき、警告のための制御動作を行わせる制御手段とを備えたことを特徴とするものである。

【0019】従って、この請求項11に記載の発明によれば、インクバッグ及びメモリチップをプリンタに対して脱着交換する際に、それらの脱着交換がほぼ同一時期

に行われたか否かを適正に監視することができる。よって、インクバッグとメモリチップとのいずれか一方のみが脱着交換されるのを抑制することができ、他方の交換が忘れられるのをほとんど防止することができる。

【0020】請求項12に記載の発明では、請求項11に記載の発明において、前記監視手段は、メモリチップとの間でデータの受け渡しを行うデータ受け渡し部と、インクバッグ上に付された識別マークを読み取るマーク読み取り部とよりなることを特徴とするものである。従って、この請求項12に記載の発明によれば、監視手段として検出スイッチ等を別に設ける必要がなく、構成を簡略化することができる。

【0021】請求項13に記載の発明では、印刷用のインクが収容されたインクバッグをセットするためのバッグセット部と、前記インクバッグと別体のメモリチップとの間でデータの受け渡しをするデータ受け渡し部とを備えたプリンタと、該プリンタからの信号を受け取って、前記データ受け渡し部によりメモリチップから読み取られたデータと、マーク読み取り部により識別マークから読み取られたデータとを比較して、メモリチップとインクバッグとの適合性を判別する判別動作を行うようにしたコンピュータとから構成されるものである。

【0022】従って、この請求項13に記載の発明によれば、インクバッグ及びメモリチップをプリンタに装着した際に、そのメモリチップとインクバッグとの適合性の判断を正確に行うことができる。よって、メモリチップとインクバッグとの不一致を抑制することができる。また、これを行うために、データの比較によりメモリチップとインクバッグとの適合性を判別する判別動作を行うような機構をプリンタ内部に設けずともよいので、プリンタの構成を簡単にすることができる。

【0023】請求項14に記載の発明では、印刷用のインクが収容されたインクバッグをセットするためのバッグセット部と、前記インクバッグと別体のメモリチップとの間でデータの受け渡しをするデータ受け渡し部とを備えたプリンタと、該プリンタからの信号を受け取って、前記インクバッグ及びメモリチップの脱着交換を監視し、インクバッグ及びメモリチップの脱着交換がほぼ同一時期に行われなことが監視されたとき、警告のための制御動作を行うようにしたコンピュータとから構成されるようにしたものである。

【0024】従って、この請求項14に記載の発明によれば、インクバッグ及びメモリチップをプリンタに対して脱着交換する際に、それらの脱着交換がほぼ同一時期に行われたか否かを適正に監視することができる。よって、インクバッグとメモリチップとのいずれか一方のみが脱着交換されるのを抑制することができ、他方の交換が忘れられるのをほとんど防止することができる。また、これを行うためにインクバッグとメモリチップの脱着交換がほぼ同一時期に行われたか否かを適正に監視す

る構造をプリンタ内部に設けずともよいので、プリンタの構成を簡単にすることができる。

【0025】請求項15に記載の発明では、インクバックセットをプリンタに装着し、インクバックから得られたデータと、このインクバックに関するデータが書き込まれるメモリチップから得られたデータとを比較して、メモリチップとインクバックとの適合性を判別するようにしたものである。従って、この請求項15に記載の発明によれば、前記請求項10と同様な作用効果を得ることができる。

【0026】請求項16に記載の発明では、インクバックセットをプリンタに装着し、インクバックから得られたデータと、このインクバックに関するデータが書き込まれるメモリチップから得られたデータとから、前記インクバック及び前記メモリチップの脱着交換を監視し、これらインクバック及びメモリチップの脱着交換がほぼ同一時期に行われなことが監視されたとき、警告動作を行うようにしたものである。従って、この請求項16に記載の発明によれば、前記請求項11と同様な作用効果を得ることができる。

【0027】

【発明の実施の形態】（第1実施形態）以下に、この発明の第1実施形態を、図1～図5に基づいて説明する。

【0028】まず、この実施形態のインクバックセットについて説明する。図1及び図2に示すように、インクバック11のインクバック本体12は、例えばガスバリア性を有するポリエチレンフィルムにアルミニウムを蒸着したラミネートフィルム等によりソフトケース状に形成され、その内部には印刷用のインクが収容されている。インクバック本体12の端部にはインク供給口13が突設され、このインク供給口13からインクバック本体12内のインクが取り出されるようになっている。

【0029】前記インクバック本体12の裏面の端縁部には、バーコード等よりなる識別マーク14が付されている。この識別マーク14には、インクバック11内のインクに関する属性データ、例えばインクの種類、色、製造年月日、製造工場等のデータが記録されている。

【0030】前記インクバック本体12の上面の中央部には、透明なポケット状の収納部15が形成されている。収納部15内にはインクバック11と別体をなすメモリチップ16が取り出し可能に収納され、このメモリチップ16は接触型メモリIC等から構成されている。このメモリチップ16には、前記識別マーク14に対応するインクバック11内のインクの属性データ、例えばインクの種類、色、製造年月日、製造工場等のデータを書き込むための記憶領域が設けられている。さらに、メモリチップ16には、インクバック11内のインクの既使用量及び残量を書き込むための記憶領域が設けられている。

【0031】次に、前記インクバック11及びメモリチ

ップ16よりなるインクバックセットを装着して使用するプリンタについて説明する。図1及び図2に示すように、プリンタ本体20には印字ヘッド21が図示しないプラテンに沿って移動可能に配設されている。プリンタ本体20の一側前面には複数のバッグ保持部22が区画形成され、それらのバッグ保持部22には各一对のガイド板22aが設けられている。そして、各バッグ保持部22には前記ソフトケース状のインクバック11がカートリッジケース23に収容した状態で、セットされるようになっている。

【0032】前記カートリッジケース23はプラスチック等によりハードケース状に形成されている。カートリッジケース23の一端面には取出口24が形成され、カートリッジケース23内に収容されたインクバック11のインク供給口13が、この取出口24から外部に突出されるようになっている。

【0033】前記カートリッジケース23の一側底面には窓部25が形成され、カートリッジケース23内に収容されたインクバック11上の識別マーク14が、この窓部25から下方へ露出されるようになっている。取出口24に隣接するように、カートリッジケース23の外面にはチップ装着部26が形成され、カートリッジケース23内にインクバック11を収容してバッグ保持部22にセットする際に、インクバック11上の収納部15からメモリチップ16を取り出して、このチップ装着部26に装着するようになっている。

【0034】図1及び図2に示すように、前記プリンタ本体20の各バッグ保持部22には供給針27が対向配置されて、供給チューブ28を介して印字ヘッド21に接続されている。そして、インクバック11がカートリッジケース23内に収容された状態でバッグ保持部22にセットされたとき、供給針27がインクバック11のインク供給口13を貫通してインクバック本体12内に挿入される。この状態で、印字ヘッド21の印刷動作に伴い、インクバック11内のインクが供給針27及び供給チューブ28を介して印字ヘッド21に供給されて、記録用紙P上に印刷が行われるようになっている。

【0035】前記各バッグ保持部22の一方のガイド板22aの端部にはマーク読み取り部29が配設され、このマーク読み取り部29により、インクバック11上の識別マーク14からインクの属性データが読み取られるようになっている。各バッグ保持部22の他方のガイド板22aの端部にはデータ受け渡し部30が配設され、このデータ受け渡し部30により、カートリッジケース23上のメモリチップ16に対して、インクの属性データ及び既使用量や残量のデータに関する書き込み並びに読み取りが接触状態で行われるようになっている。

【0036】次に、前記のような構造よりなるプリンタの回路構成について説明する。図3に示すように、プリンタ本体20にはプリンタ全体の動作を制御する中央処

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理装置 (CPU) 33 が設けられ、その CPU 33 には、動作プログラムを格納したリードオンリメモリ (ROM) 34 及びワーキングデータを一時的に格納するランダムアクセスメモリ (RAM) 35 が接続されている。CPU 33 には前記印字ヘッド 21 を含む印字機構 36 が接続され、この印字機構 36 に作動信号が出力されるようになっている。また、CPU 33 にはマーク読み取り部 29 及びデータ受け渡し部 30 が接続され、このマーク読み取り部 29 及びデータ受け渡し部 30 との間でインクの属性データ等の受け渡しが行われるようになっている。

【0037】さらに、前記プリンタ本体 20 内の CPU 33 には、インターフェース 37 を介して外部のパーソナルコンピュータ (以下、PC と記載する) 38 が接続され、この PC 38 との間で印刷データや警告表示信号の受け渡しが行われるようになっている。PC 38 にはディスプレイ装置等の表示部 39 が接続され、CPU 33 から PC 38 に警告表示信号が出力されたとき、この表示部 39 に警告メッセージが表示されるようになっている。PC 38 にはキーボード 40 が接続され、このキーボード 40 から種々のデータが入力されるようになっている。

【0038】また、この実施形態においては、前記 CPU 33、マーク読み取り部 29 及びデータ受け渡し部 30 により、インクバッグ 11 及びメモリチップ 16 の脱着交換を監視するための監視手段が兼用されるとともに、CPU 33 により判別手段が構成されている。そして、マーク読み取り部 29 及びデータ受け渡し部 30 により、インクバッグ 11 及びメモリチップ 16 の脱着交換がほぼ同一時期に行われないことが確認されたとき、すなわちインクバッグ 11 とメモリチップ 16 とのいずれか一方が脱着交換された後、所定時間を経過しても他方が脱着交換されないことが検出されたとき、CPU 33 から他方の脱着交換を促す警告表示信号が出力されるようになっている。

【0039】さらに、この実施形態においては、前記 CPU 33 により判別手段が構成されている。そして、プリンタ本体 20 にインクバッグ 11 及びメモリチップ 16 が装着された際に、マーク読み取り部 29 にてインクバッグ 11 上の識別マーク 14 から読み取られたインクの属性データと、データ受け渡し部 30 にてメモリチップ 16 から読み取られたインクの属性データとが、CPU 33 により比較されて、インクバッグ 11 とメモリチップ 16 との適合性が判別され、不適合の場合には、その旨の警告表示信号が出力されるようになっている。

【0040】しかも、前記バッグ保持部 22 に装着されたインクバッグ 11 内のインクを使用して、印字ヘッド 21 により記録用紙 P 上に印刷が行われる際に、CPU 33 の制御に基づいて、データ受け渡し部 30 によりメモリチップ 16 にインクの既使用量又は残量のデータが

書き込まれる。そして、メモリチップ 16 に書き込まれたインクの積算使用量又は積算残量が所定値に達したとき、CPU 33 からインクバッグ 11 の交換を促す警告表示信号が出力されるようになっている。

【0041】次に、前記のように構成されたインクバッグセット及びそれを装着するようにしたプリンタの動作を説明する。まず、インクバッグ 11 及びメモリチップ 16 の脱着交換時の監視動作について、図 4 のフローチャートに従って説明する。インクバッグ 11 とメモリチップ 16 とのいずれか一方が脱着交換されると、その交換動作がマーク読み取り部 29 またはデータ受け渡し部 30 で検出される (ステップ S1)。その後、インクバッグ 11 とメモリチップ 16 との他方が脱着交換されて、その交換動作がデータ受け渡し部 30 またはマーク読み取り部 29 にて検出されるのが待たれる (ステップ S2)。

【0042】そして、インクバッグ 11 とメモリチップ 16 との一方が脱着交換された後、一定時間経過しても他方の脱着交換が行われないときには (ステップ S3)、CPU 33 から PC 38 を介して表示部 39 に警告表示信号が出力される。これにより、例えば「交換済みのインクバッグと対応するメモリチップに交換して下さい」、あるいは「交換済みのメモリチップと対応するインクバッグに交換して下さい」等の警告メッセージが、表示部 39 に表示される (ステップ S4)。

【0043】次いで、インクバッグ 11 及びメモリチップ 16 の装着時におけるデータの読み込み及び処理動作について、図 5 のフローチャートに従って説明する。インクバッグ 11 がカートリッジケース 23 内に收容されるとともに、メモリチップ 16 がカートリッジケース 23 のチップ装着部 26 に装着された状態で、カートリッジケース 23 がプリンタ本体 20 のバッグ保持部 22 にセットされると、マーク読み取り部 29 によりインクバッグ 11 上の識別マーク 14 のデータが読み取られる (ステップ S5)。それとともに、データ受け渡し部 30 によりメモリチップ 16 のデータが読み取られ (ステップ S6)、そのメモリチップ 16 からの読み取りデータが存在するか否かが判別される (ステップ S7)。

【0044】前記ステップ S7 の判別において、メモリチップ 16 からの読み取りデータが存在する場合には、識別マーク 14 からの読み取りデータとメモリチップ 16 からの読み取りデータとが一致するか否かが判別される (ステップ S8)。そして、両データが一致しないときには、すなわちインクバッグ 11 とメモリチップ 16 とが対応しない場合には、CPU 33 から PC 38 を介して表示部 39 に警告表示信号が出力される。これにより、例えば「インクバッグとメモリチップとが一致しません。一致するものに装着しなおして下さい」等の警告メッセージが、表示部 39 に表示される (ステップ S9)。

【0045】一方、前記ステップS7の判別において、メモリチップ16からの読み取りデータが存在しない場合には、識別マーク14から読み取られたインクの属性データがデータ受け渡し部30により、メモリチップ16に書き込まれる(ステップS10)。その後、メモリチップ16の属性データに基づいて印刷動作が開始されると、インクバッグ11内のインクの使用が検出され(ステップS11)、そのインクの既使用量のデータ又は残量がデータ受け渡し部30により、メモリチップ16に書き込まれる(ステップS12)。また、前記ステップS8の判別において、識別マーク14からの読み取りデータとメモリチップ16からの読み取りデータとが一致した場合には、ステップS11、S12に進行して前記の動作が行われる。

【0046】続いて、前記メモリチップ16に書き込まれたインクの積算使用量又は積算残量が所定値に達したか否かが判別され(ステップS13)、インクの積算使用量又は積算残量が所定値に達するまでは、前記ステップS11～S13の動作が繰り返し行われる。そして、インクの積算使用量又は積算残量が所定値に達すると、CPU33からPC38を介して表示部39に警告表示信号が出力される。これにより、例えば「インクバッグのインクがなくなりました。新しいものと交換して下さい」等の警告メッセージが、表示部39に表示される(ステップS14)。

【0047】従って、この実施形態によれば、以下のような効果を得ることができる。

(1) このインクバッグセットにおいては、印刷用のインクが収容されたインクバッグ11と、そのインクバッグ11と別体をなし、インクバッグ11に関するデータが書き込まれるメモリチップ16とよりなっている。このため、メモリチップ16にインクの使用量又は残量を書き込むことによって、インク使用量又は残量の管理をインクバッグ11ごとに行うことができる。よって、インクバッグ11をインクの使用途中でプリンタから取り外した後、そのインクバッグ11を再びプリンタに装着して使用する場合、メモリチップ16も同時に着脱することによりインク使用量又は残量の管理を継続して行うことができる。しかも、バーコードよりなる識別マークとは異なり、メモリチップには多量のデータを記憶されることができるとともに、書き込みや消去も自在なので、インクバッグ11の管理を細かく確実に行うことができる。また、インクバッグ11のインクが総て使用されても、メモリチップ16には、他のインクバッグ11のデータを書き込むこともできるので、メモリチップ16はインクバッグ11と異なり、そのまま利用することもできる。

【0048】(2) このインクバッグセットにおいては、メモリチップ16がインクバッグ11と別体になっていることで、インクバッグ11がソフトケースから構

成されていても、メモリチップ16をインクバッグ11に対応して設けることができる。

【0049】(3) このインクバッグセットにおいては、前記インクバッグ11が、メモリチップ16を収納するための収納部15を有している。このため、メモリチップ16をインクバッグ11の収納部15に収納することによって、それらを一体的に取り扱うことができるとともに、メモリチップ16が別体であっても、メモリチップ16の紛失の恐れが少ない。

【0050】(4) このインクバッグセットにおいては、前記インクバッグ11に識別マーク14が付されている。このため、インクバッグ11上の識別マーク14のデータをメモリチップ16に書き込むことにより、インクバッグ11及びメモリチップ16をプリンタに装着した際に、それらの適合性の判断等に使用することができる。

【0051】(5) このインクバッグセットを装着するようにしたプリンタにおいては、印刷用のインクが収容されたインクバッグ11をセットするためのバッグ保持部22と、インクバッグ11と別体のメモリチップ16との間でデータの受け渡しをするデータ受け渡し部30とが設けられている。このため、インクバッグ11をバッグ保持部22にセットするとともに、メモリチップ16をデータ受け渡し部30と対応する位置に装着した状態で、インクの使用量又は残量の管理等を容易に行うことができる。

【0052】(6) このプリンタにおいては、ソフトケースよりなるインクバッグ11をカートリッジケース23に収容した状態で、バッグ保持部22にセットするように構成されている。このため、インクバッグ11がソフトケースであっても、プリンタ本体20に容易にかつ確実にセットすることができる。

【0053】(7) このプリンタにおいては、前記メモリチップ16がインクの属性データを記憶し、前記データ受け渡し部30が印刷動作のために、メモリチップ16から属性データを読み出すようになっている。このため、メモリチップ16からインクの属性データを読み出して、印刷動作を的確に制御することができる。

【0054】(8) このプリンタにおいては、前記データ受け渡し部30が、メモリチップ16に対してインクの既使用量又は残量のデータを書き込み、積算使用量又は積算残量が所定値に達した際に、警告のための制御動作を行うようになっている。このため、インクバッグ11のインクの残量又は使用量を適正に管理することができ、インクがなくなったことを的確に警告することができ、インクバッグ11の交換を適切なタイミングで行うことができる。従って、インク切れ等の不都合な事態を未然に防止することができる。

【0055】(9) このプリンタにおいては、データ受け渡し部30によりメモリチップ16から読み取られた

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データと、マーク読み取り部 29 により識別マーク 14 から読み取られたデータとが比較されて、メモリチップ 16 とインクバッグ 11 との適合性が判別されるようになっている。このため、インクバッグ 11 及びメモリチップ 16 をプリンタに装着した際に、そのメモリチップ 16 とインクバッグ 11 との適合性の判断を正確に行うことができる。よって、メモリチップ 16 とインクバッグ 11 との不一致を抑制することができる。

【0056】(10) このプリンタにおいては、インクバッグ 11 及びメモリチップ 16 の脱着交換が監視され、そのインクバッグ 11 及びメモリチップ 16 の脱着交換がほぼ同一時期に行われなことが監視されたとき、警告のための制御動作が行われるようになってい。このため、インクバッグ 11 及びメモリチップ 16 をプリンタに対して脱着交換する際に、それらの脱着交換がほぼ同一時期に行われたか否かを適正に監視することができる。よって、インクバッグ 11 とメモリチップ 16 とのいずれか一方のみが脱着交換されるのを抑制することができ、他方の交換が忘れられるのをほとんど防止することができる。

【0057】(11) このプリンタにおいては、前記インクバッグ 11 及びメモリチップ 16 の脱着交換を監視する手段が、メモリチップ 16 との間でデータの受け渡しを行うデータ受け渡し部 30 と、インクバッグ 11 上に付された識別マーク 14 を読み取るマーク読み取り部 29 とにより構成されている。このため、監視手段として検出スイッチ等を別に設ける必要がなく、構成を簡略化することができる。

【0058】(第 2 実施形態) 次に、この発明の第 2 実施形態を、前記第 1 実施形態と異なる部分を中心に説明する。なお、第 2 実施形態以降の各実施形態においては、前記のように第 1 実施形態と異なる部分を中心に説明する。

【0059】さて、この第 2 実施形態においては、図 6 に示すように、プリンタ本体 20 の一側前面に各バッグ保持部 22 と対応する複数のチップ挿入部 43 が形成されている。そして、インクバッグ 11 をカートリッジケース 23 に収容した状態で、プリンタのバッグ保持部 22 にセットする際に、そのインクバッグ 11 上の収納部 15 からメモリチップ 16 を取り出して、バッグ保持部 22 と対応するチップ挿入部 43 に挿入するようになっている。

【0060】前記各チップ挿入部 43 と対応するようには、プリンタ本体 20 内には複数のデータ受け渡し部 30 が配設されている。そして、チップ挿入部 43 内に挿入されたメモリチップ 16 とデータ受け渡し部 30 との間で、インクバッグ 11 内のインクの属性データやインクの既使用量及び残量のデータの受け渡しが行われるようになっている。

【0061】従って、この第 2 実施形態によれば、前記

第 1 実施形態における (1) ~ (11) に記載の効果と同様の効果を得ることができる。

【0062】(第 3 実施形態) 次に、この発明の第 3 実施形態を説明する。

【0063】さて、この第 3 実施形態においては、図 7 に示すように、インクバッグ 11 の端部にメモリチップ 16 が連結索 44 を介して付設されている。そして、インクバッグ 11 をカートリッジケース 23 に収容した状態で、プリンタのバッグ保持部 22 にセットする際に、インクバッグ 11 に付設されたメモリチップ 16 をカートリッジケース 23 の外面のチップ装着部 26 に装着するようになっている。

【0064】従って、この第 3 実施形態によれば、前記各実施形態における (1), (2), (4) ~ (11) に記載の効果に加えて、以下のような効果を得ることができる。

【0065】(12) このインクバッグセットにおいては、メモリチップ 16 がインクバッグ 11 に対して、連結索 44 を介して付設されている。このため、インクバッグ 11 とメモリチップ 16 とを連結索 44 にて連結された状態で、一体的に取り扱うことができ、プリンタに対して容易に装着することができるとともに、メモリチップ 16 の紛失をほとんど防止することができる。

【0066】(第 4 実施形態) 次に、この発明の第 4 実施形態を説明する。さて、この第 4 実施形態においては、図 8 に示すように、ソフトケースよりなるインクバッグ 11 がハードケースよりなるバッグ保持ケース 45 内に収容された状態で販売され、これによってインクバッグ 11 の外力による破損が抑制されるようになっている。また、メモリチップ 16 もインクバッグ 11 と同一のバッグ保持ケース 45 内に収容されている。

【0067】そして、インクバッグ 11 をバッグ保持ケース 45 から取り出して、カートリッジケース 23 を介してプリンタのバッグ保持部 22 にセットする際に、メモリチップ 16 をバッグ保持ケース 45 から取り出して、カートリッジケース 23 上のチップ装着部 26 に装着し、またはプリンタ本体 20 のチップ挿入部 43 に挿入するようになっている。

【0068】従って、この第 4 実施形態によれば、前記各実施形態における (1), (2), (4) ~ (11) と同様な効果を得ることができる。

【0069】(第 5 実施形態) 次に、この発明の第 5 実施形態を説明する。

【0070】さて、この第 5 実施形態においては、図 9 に示すように、複数のソフトケースよりなるインクバッグ 11 が 1 組として、ハードケースよりなるバッグ保持ケース 45 内に梱包保持されている。この場合、異色のインクを収容した複数のインクバッグ 11 が 1 組として梱包され、あるいは同色のインクを収容した複数のインクバッグ 11 が 1 組として梱包されている。そして、こ

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の梱包によって、各インクバッグ11の外力による破損が抑制されるようになっている。

【0071】また、前記バッグ保持ケース45内には、1つのメモリチップ16が1組のインクバッグ11に対応して収容されている。このメモリチップ16には、複数のインクバッグ11の識別マーク14に対応するインクの属性データを書き込み可能な記憶領域、及び複数のインクバッグ11に関するインクの既使用量のデータや残量のデータを書き込み可能な記憶領域が設けられている。

【0072】そして、異色のインクを収容した複数のインクバッグ11を1組としてバッグ保持ケース45から取り出し、あるいは同色のインクを収容したインクバッグ11を1つずつバッグ保持ケース45から取り出して、カートリッジケース23を介してプリンタのバッグ保持部22にセットする。この際には、メモリチップ16をバッグ保持ケース45から取り出して、カートリッジケース23上のチップ装着部26に装着し、またはプリンタ本体20のチップ挿入部43に挿入するようになっている。この場合、1つのメモリチップ16により、複数のインクバッグ11に関するインクのデータ処理が行われる。

【0073】従って、この第5実施形態によれば、前記各実施形態における(1)、(2)、(4)～(11)に記載の効果に加えて、以下のような効果を得ることができる。

【0074】(13) このインクバッグセットにおいては、複数のインクバッグ11が1組としてバッグ保持ケース45に保持されている。このため、異色のインクを収容した複数のインクバッグ11をプリンタに同時に装着して使用する場合、あるいは同色のインクを収容した複数のインクバッグ11をプリンタに順に装着して使用する場合や販売する場合に便利である。

【0075】(14) このインクバッグセットにおいては、メモリチップ16が1組のインクバッグ11に対応して設けられている。このため、1つのメモリチップ16で複数のインクバッグ11の属性データ等の処理を容易に行うことができる。

【0076】(15) このインクバッグセットにおいては、前記メモリチップ16に、複数のインクバッグ11の識別マーク14に対応するデータが書き込まれるようになっている。このため、1つのメモリチップ16に複数のインクバッグ11の識別マーク14から読み取られた属性データ等を確実にインクバッグ11毎に書き込んで、それらのインクバッグ11のデータ処理を容易に行うことができる。

【0077】(16) このインクバッグセットにおいては、前記メモリチップ16に、複数のインクバッグ11のインク残量又は使用量に関するデータを書き込み可能な記憶領域が設けられている。このため、同色のインク

を収容した複数のインクバッグ11をプリンタに順に装着して使用する場合、各インクバッグ11のインクの使用量又は残量を継続的に管理することができる。

【0078】(17) このインクバックセットにおいて、すべて同じインクバックである場合には、メモリチップ16にインクバックの情報を書き込むことができるので、メモリチップ16を使い回すことができる。

【0079】(第6実施形態) 次に、この発明の第6実施形態を説明する。さて、この第6実施形態においては、図10に示すように、異色のインクを収容した複数のソフトケースよりなるインクバッグ11が1組として、ハードケースよりなるバッグ保持ケース45内に梱包保持されている。バッグ保持ケース45の側壁には複数の透孔46が形成され、各インクバッグ11のインク供給口13がこれらの透孔46を介して外部に露出されている。

【0080】前記バッグ保持ケース45の側壁外面には、1つのメモリチップ16が1組のインクバッグ11に対応して取り付けられている。このメモリチップ16には、複数のインクバッグ11の識別マーク14に対応するインクの属性データを書き込み可能な記憶領域、及び複数のインクバッグ11に関するインクの既使用量のデータや残量のデータを書き込み可能な記憶領域が設けられている。

【0081】また、プリンタにおけるバッグ保持部22は、複数のインクバッグ11をバッグ保持ケース45に保持したままの状態でもセットできるように構成されている。そして、このバッグ保持部22には、各インクバッグ11のインク供給口13に貫通可能な複数の供給針27が配設されるとともに、バッグ保持ケース45上のメモリチップ16に対応可能なデータ受け渡し部30が設けられている。

【0082】従って、この第6実施形態によれば、前記各実施形態における(1)、(2)、(4)～(11)、(13)～(16)に記載の効果に加えて、以下のような効果を得ることができる。

【0083】(18) このインクバッグセットにおいては、メモリチップ16がバッグ保持ケース45に取り付けられている。このため、インクバッグ11をバッグ保持ケース45に保持された状態でバッグ保持部22にセットすれば、そのバッグ保持ケース45に取り付けられたメモリチップ16を、プリンタに対して容易に装着することができる。

【0084】(19) このインクバッグを装着するようにしたプリンタにおいては、バッグ保持部22が、複数のインクバッグ11をバッグ保持ケース45に保持したままの状態でもセットできるようになっている。このため、複数のインクバッグ11をバッグ保持ケース45から取り出してバッグ保持部22にセットする必要がなく、そのセット操作を容易に行うことができる。

【0085】（変更例）なお、この実施形態は、次のように変更して具体化することも可能である。

・前記第1及び第3実施形態において、インクバッグ11をハードケースにて形成し、インクバッグ11をカートリッジケース23に收容することなく、プリンタのバッグ保持部22に直接セットするように構成してもよい。この場合には、インクバッグ11上の収納部15に収納され、またはインクバッグ11に連結索44を介して付設されたメモリチップ16を、前記第2実施形態のようにプリンタ本体20のチップ挿入部43に挿入するように構成する。

【0086】・前記第4実施形態において、ソフトケースよりなるインクバッグ11を、ハードケースよりなるバッグ保持ケース45に收容したままの状態、カートリッジケース23を使用することなく、プリンタのバッグ保持部22に直接セットするように構成してもよい。この場合、メモリチップ16は前記第6実施形態のように、バッグ保持ケース45の側壁外面に取り付けるように構成する。

【0087】・前記第5実施形態において、1組のインクバッグ11のそれぞれに対応するようにメモリチップ16を設けるようにしてもよいし、1組のインクバッグ11の個数よりも少ないメモリチップ16を設けるようにしてもよい。

【0088】・前記第6実施形態において、複数のインクバッグ11をハードケースにて形成し、それらのインクバッグ11をバッグ保持ケース45に收容したままの状態、プリンタのバッグ保持部22にセットするように構成してもよい。

【0089】・前記各実施形態において、メモリチップ16を、例えば非接触型メモリで構成し、プリンタ側に設けられたデータ受け渡し部30と光等を介してデータの送信を行うように構成してもよい。

【0090】・前記各実施形態において、インクバッグ11上の識別マーク14を省略し、メモリチップ16に対してインクバッグ11に関するインクの属性データ等を予め書き込んで、印刷動作を制御するように構成してもよい。

【0091】・前記各実施形態において、インクバッグ11及びメモリチップ16の脱着交換の監視手段として近接スイッチ等の検出スイッチを設け、プリンタに対するインクバッグ11及びメモリチップ16の脱着交換時に、これらの検出スイッチから検出信号が出力されるように構成してもよい。

【0092】・前記各実施形態において、プリンタ本体20内に格納されたCPU33によるインクバッグ11とメモリチップ16との適応性の判断やインクバッグ11及びメモリチップ16の脱着交換の監視や積算使用量又は積算残量が所定値に達した時の警告の制御動作などを、プリンタ本体20の外部のPC38で行うようにし

てもよい。また、PCと接続されるだけでなく、ファクスやコピーに接続されるプリンタで行うようにしてもよい。すなわち、請求項に記載のコンピュータとは、一般にコンピュータと称されるPC等だけでなく、処理演算が行うことが可能な電子計算機のすべてを含むものとする。

【0093】次に上記実施形態及び別例から把握できる請求項に記載した以外の技術的思想について、それらの効果とともに以下に記載する。

【0094】（1）前記インクバッグに識別マークを付したことを特徴とする請求項1～請求項5のうちのいずれか一項に記載のインクバッグセット。

【0095】従って、この（1）に記載の発明によれば、インクバッグ上の識別マークのデータをメモリチップに書き込むことにより、インクバッグ及びメモリチップをプリンタに装着した際に、それらの適合性の判断等に使用することができる。

【0096】（2）複数のインクバッグを1組としてバッグ保持ケースに保持したことを特徴とする請求項1～請求項5及び前記（1）項のうちのいずれか一項に記載のインクバッグセット。

【0097】従って、この（2）に記載の発明によれば、複数のインクバッグが1組としてバッグ保持ケースに保持されている。このため、異色のインクを收容した複数のインクバッグをプリンタに同時に装着して使用する場合、同色のインクを收容した複数のインクバッグをプリンタに順に装着して使用する場合、あるいは一括して販売する場合に便利である。

【0098】（3）前記メモリチップをバッグ保持ケースに取り付けたことを特徴とする前記（2）に記載のインクバッグセット。従って、この（3）に記載の発明によれば、バッグ保持ケースに取り付けられたメモリチップを、インクバッグとともにプリンタに対して容易に装着することができる。

【0099】（4）前記メモリチップは1組のインクバッグに対応して設けたことを特徴とする前記（2）項又は前記（3）項に記載のインクバッグセット。従って、この（4）に記載の発明によれば、1つのメモリチップで複数のインクバッグの属性データ等の処理を容易に行うことができる。

【0100】（5）前記メモリチップには、複数のインクバッグのインクの使用量又は残量に関するデータを書き込み可能な記憶領域を設けたことを特徴とする請求項6に記載のインクバッグセット。

【0101】従って、この（5）に記載の発明によれば、同色のインクを收容した複数のインクバッグをプリンタに順に装着して使用する場合、各インクバッグのインクの使用量又は残量を継続的に管理することができる。

【0102】（6）前記バッグセット部は、複数のイン

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クバッグを保持するバッグ保持ケースをセットするように構成したことを特徴とする請求項 8 に記載のプリンタ。従って、この (6) に記載の発明によれば、複数のインクバッグをバッグ保持ケースに保持したままの状態、バッグセット部に対して容易にセットすることができる。

【0103】(7) 前記メモリチップはインクの属性データを記憶し、前記データ受け渡し部は印刷動作のために、メモリチップから属性データを読み出すことを特徴とする請求項 8、請求項 10、請求項 11 及び前記

(6) 項の何れかに記載のプリンタ。

【0104】従って、この (7) に記載の発明によれば、メモリチップからインクの属性データを読み出して、印刷動作を的確に制御することができる。

【0105】(8) 前記データ受け渡し部は、メモリチップに対してインクの既使用量のデータ又は残量のデータを書き込み、積算使用量又は積算残量が所定値に達した際に、警告のための制御動作を行うことを特徴とする請求項 8、請求項 10、請求項 11、前記 (6) 項及び前記 (7) 項の何れかに記載のプリンタ。

【0106】従って、この (8) に記載の発明によれば、インクバッグのインクの使用量又は残量を適正に管理することができ、インクがなくなったことを的確に警告することができ、インクバッグの交換を適切なタイミングで行うことができる。従って、インク切れ等の不都合な事態を未然に防止することができる。

【0107】(9) 印刷用のインクが収容されたインクバッグをセットするためのバッグセット部と、前記インクバッグと別体のメモリチップとの間でデータの受け渡しをするデータ受け渡し部とを備えたプリンタと、該プリンタからの信号を受け取って、該インクの積算使用量又は積算残量が所定値に達した際に、警告の制御動作を行うようにしたコンピュータとから構成されるプリンタシステム。

【0108】従って、この (9) に記載の発明によれば、インクバッグのインクの使用量又は残量を適正に管理することができ、インクがなくなったことを的確に警告することができ、インクバッグの交換を適切なタイミングで行うことができる。従って、インク切れ等の不都合な事態を未然に防止することができる。また、これを行うために、警告の制御動作を行うような機構をプリンタ内部に設けずともよいので、プリンタの構成を簡単にする事ができる。

【0109】

【発明の効果】以上、詳述したように、この発明によれば、メモリチップにインク残量あるいは使用量を書き込むことによって、インクの使用量又は残量の管理をイン

クバッグごとに行うことができる。よって、インクバッグをインクの使用途中でプリンタから取り外した後、そのインクバッグを再びプリンタに装着して使用する場合、インク使用量又は残量の管理を継続して行うことができる。また、メモリチップには、多量のデータを書き込むことができるため、インクバック管理を多量のデータに基づいて充分に行うことができる。

【図面の簡単な説明】

10 【図 1】第 1 実施形態のインクバッグセットを装着したプリンタを示す斜視図。

【図 2】インクバッグ及びその装着構成を拡大して示す分解斜視図。

【図 3】図 1 のプリンタを含む回路構成を示すブロック図。

【図 4】インクバッグ及びメモリチップの交換時の警告表示動作を説明するフローチャート。

【図 5】インクバッグ及びメモリチップの装着時におけるデータの読み込み及び処理動作を説明するフローチャート。

20 【図 6】第 2 実施形態のプリンタを斜視図。

【図 7】第 3 実施形態のインクバッグセットを示す斜視図。

【図 8】第 4 実施形態のインクバッグセットを示す斜視図。

【図 9】第 5 実施形態のインクバッグセットを示す斜視図。

【図 10】第 6 実施形態のインクバッグセット及びその装着構成を示す斜視図。

【符号の説明】

30 11…インクバッグ

12…インクバッグ本体

14…識別マーク

15…収納部

16…メモリチップ

20…プリンタ本体

21…印字ヘッド

22…バッグセット部

23…カートリッジケース

26…チップ装着部

40 29…監視手段を兼用するマーク読み取り部

30…監視手段を兼用するデータ受け渡し部

33…制御手段及び判別手段を構成する CPU

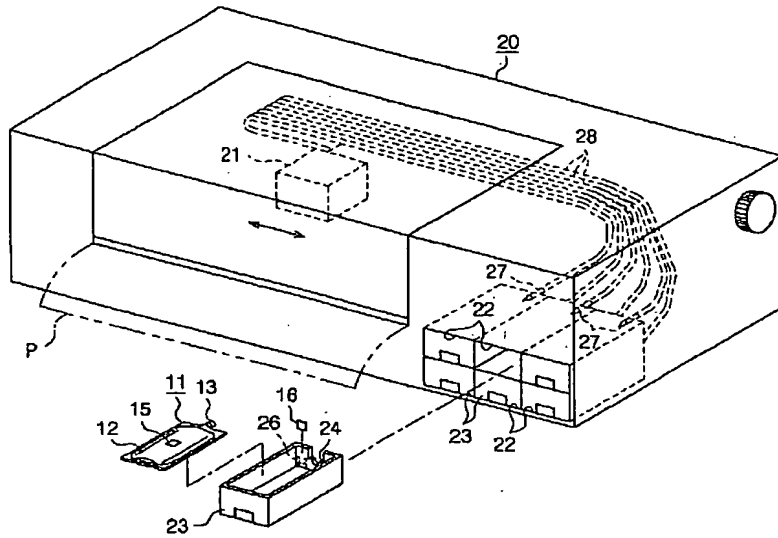
38…コンピュータ

39…表示部

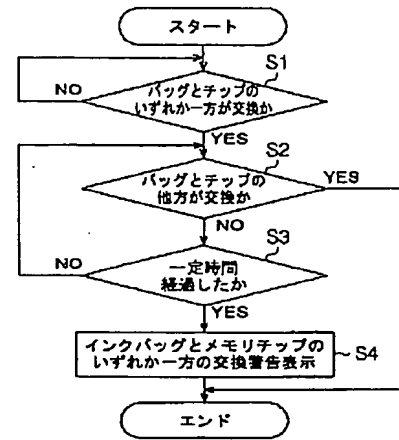
44…連結索

45…バッグ保持ケース

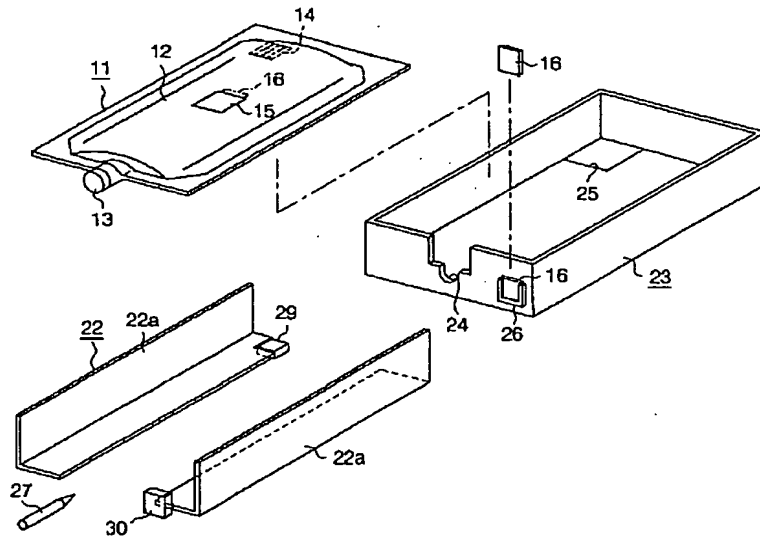
【図 1】



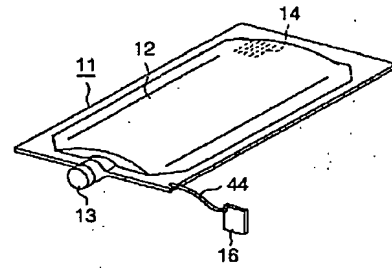
【図 4】



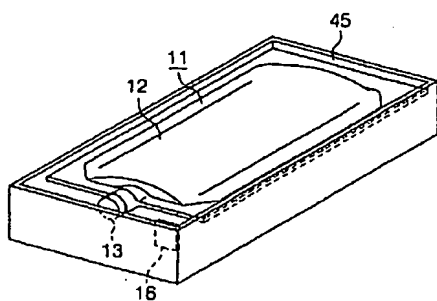
【図 2】



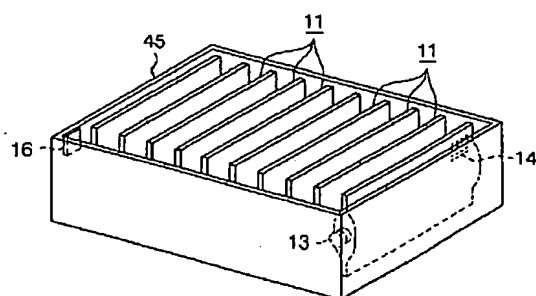
【図 7】



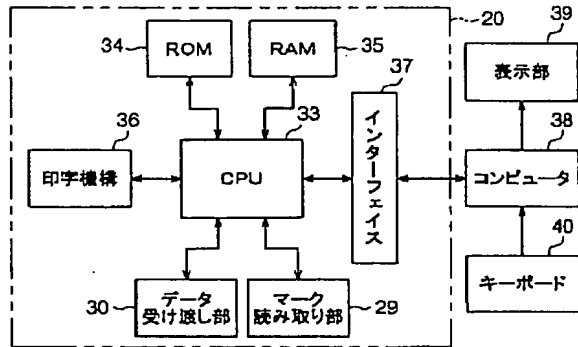
【図 8】



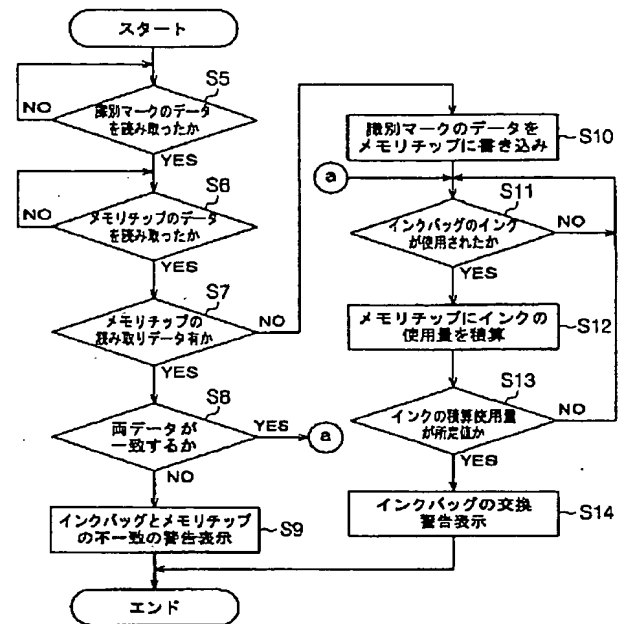
【図 9】



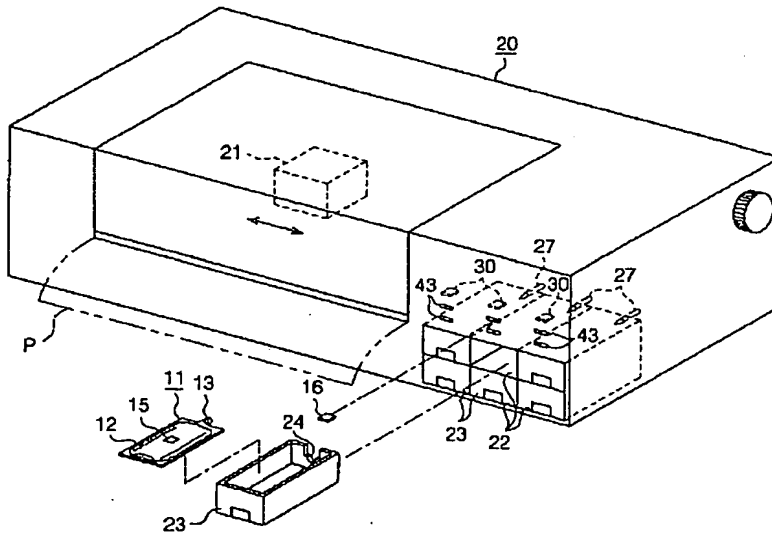
【図3】



【図5】



【図6】



【図10】

